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UNITED STATES AIR FORCE

DTIC

EPI REPORT

ELECTRONICS PRINCIPLES INVENTORY

SHEPPARD TECHNICAL TRAINING CENTER

AFPT 90-EPI-825

FEBRUARY 1990

OCCUPATIONAL ANALYSIS PROGRAM
USAF OCCUPATIONAL MEASUREMENT CENTER
AIR TRAINING COMMAND
RANDOLPH AFB, TEXAS 78150-5000

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PREFACE

This report presents the results of an Air Force Electronic Principles survey of 13 selected Air Force specialties. Authority for conducting Electronic Principles (EP) surveys is contained in AFR 35-2.

Results presented in this report are part of an EP survey of 81 Air Force specialties. This survey was requested by the Chief, Common Electronics Training Program (CETP) Program Management Team (PMT) in October 1985.

The Electronic Principles Inventory (EPI) used to collect EP survey data was originally developed in 1976 by Dr Hendrick Ruck and Major Thomas O'Connor. Mr Theodore Wilcox revised and validated the EPI in 1986 as part of this survey project.

First Lieutenant Robert Hampel analyzed the data and wrote the final report. Computer programming support was provided by Ms Olga Velez and Mr Wayne Fruge, and Tamme Lambert provided administrative support. This report was reviewed and approved by Mr Gerald Clow, Chief, Management Applications Branch, Occupational Analysis Division, USAF Occupational Measurement Center.

This report is distributed to Air Staff sections, major commands, and other training and management personnel. Requests for additional copies should be sent to:

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BOBBY P. TINDELL, Colonel, USAF Commander USAF Occupational Measurement Center JOSEPH S. TARTELL
Chief, Occupational Analysis Division
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Center

REPORT SUMMARY

- 1. BACKGROUND: This report provides data on the electronic principles (EP) used by airmen in 13 Air Force specialties (AFSs) with initial training at Sheppard Technical Training Center (TTC).
- 2. METHODOLOGY: The USAF Electronic Principles Inventory (AFPT 90-EPI-825) was administered to random samples of fully qualified job incumbents representing the 13 AFSs in this report. The data were collected from March 1987 to September 1988.
- 3. RESULTS: Complete survey data is provided in three appendices:

Appendix A: Sheppard TTC AFSCs EP data in EPI job inventory order

Appendix B: Sheppard TTC AFSCs EP data matched to Electronic Fundamentals/Applications (EF/A) STS

Appendix C: Sheppard CETP AFSCs EP data matched to POI J3AQR30020, dated 31 October 1984

NOTE: A "generic" version of the Electronic Fundamentals/Applications (EF/A) is used in Appendix B--complete analysis requires the use of AFSC-specific proficiency codes, rather than the generic set used in the appendix.

4. DISCUSSION AND IMPLICATIONS: Although there is no specific regulatory guidance on the use of EPI data, the survey data lends itself to the use of cutoff scores for deciding which EPI items to include in centralized training for each AFSC. Once the training needs of the individual AFSCs have been determined, the possibility for consolidated EP training can be considered.

The survey data indicate two areas needing review. First, some of the AFSCs which do not currently attend the Sheppard EP course use as many or more EPI items than those AFSCs which do attend. These AFSCs (361X0, 361X1, 542X0, 542X1, 542X2, 545X0, 545X2, and 545X3) should be investigated for possible enrollment in the course.

Second, the POI for course J3AQR30020 requires review whether or not new AFSCs are selected for attendance. Survey data showed very weak support for three POI objectives, with all five of the AFSCs which currently attend this course reporting less than 30 percent of group members responding "Yes" to the matched EPI items. Twenty-one POI objectives had only one of the five AFSC groups where at least 30 percent members responded "Yes" to the matched EPI items. Also, 72 of the EPI items not referenced any POI objective were used by at least 30 percent of group members in at least two of the five AFSCs which currently attend the EP course.

ELECTRONIC PRINCIPLES SURVEY REPORT SHEPPARD TECHNICAL TRAINING CENTER

INTRODUCTION

From missile systems maintainers to telephone switching specialists, from avionics technicians to biomedical equipment personnel, the U.S. Air Force employs more than 50,000 worker-level (primarily 5-skill level) personnel who require electronic principles (EP) training. These highly skilled, technically trained airmen work in over 80 Air Force specialties (AFSs) spanning 11 career fields. Furthermore, the depth and breadth of required EP training varies based on specialty needs. In short, the USAF spends vast amounts of money, manpower, and time to ensure that airmen are properly trained in electronic principles.

To make the best use of these resources, the USAF Common Electronics Training Program (CETP) was designed to consolidate and standardize Air Force EP training where possible and practical. This is primarily accomplished through special EP courses taught at four USAF Technical Training Centers (TTCs). These EP courses teach the electronic principles common to two or more AFSs. Another part of the CETP is the development of common training modules. Specific blocks of EP instruction are developed by one TTC, then shared with the other TTCs which teach that EP subject. By selectively combining and standardizing Air Force EP training, the USAF makes best use of limited training resources.

Not all Air Force electronic principles training is conducted in special EP courses, however. For example, some EP subjects are used in only one AFS. Students learn these generally advanced topics in AFSC-awarding courses, building on the more basic EP subjects from the common EP course. Also, some AFSs require very few electronic principles, and airmen in these specialties receive EP training only in their AFSC-awarding courses.

As with other Air Force technical training, EP training programs can profit from objective analysis of specific training requirements. These requirements can be analyzed objectively using occupational survey data. This EP survey provides data which can be used to analyze the specific EP training requirements in CETP courses and AFSC-awarding courses alike. The instrument used to collect EP survey data is the Electronic Principles Inventory (EPI).

BACKGROUND

The USAF EPI is a knowledge- and skills-based job inventory which identifies the electronic principles, skills, and equipment an airman uses in the performance of his or her job.

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The EPI was originally developed by Dr Hendrick Ruck and Major Thomas O'Connor in 1976. An indepth discussion of the original concept, development, and validation of the EPI can be found in USAFOMC Technical Note 77-02, "The Development and Application of the Electronic Principles Job Inventory". Mr Theodore Wilcox revised and validated the EPI in 1986 for this survey.

The EPI contains two sections. First is a background section containing demographic and job satisfaction questions. The second section contains 712 electronic principles, skills, and equipment questions covering 39 EP subject areas. Below are some example questions taken from the EPI. The 39 EPI subject areas are listed in Table 1.

After completing the background section, job incumbents respond "Yes" or "No" to the 712 EPI questions. The result is a "profile" of electronic principles, skills, and equipment used by the incumbent in his or her present job. This electronic principles "profile" can be combined with the "profiles" of other job incumbents to produce a "profile" for the entire AFS.

EXAMPLE EPI QUESTIONS

Example Principles Questions

A4-4	Do you us	e electron	ı tube characteristi	c curves?
G1-20	Do you us	e parity b	it codes?	
H4-33	Do you us	e "FM" mod	ulation principles?	

Example Skills Questions

C1-8	Do you calculate values of transistor amplifier voltage,
	current, or power gain?
E2-1	Do you trace schematic or block diagrams of circuits
	containing frequency sensitive filters?
I1-4	Do you measure RF effective power?

Example Equipment Questions

B4-2	Do you use spectrum analyzers?
D3-5	Do you perform tasks on variable resistor voltage
	regulators?
J1-8	Do you work on dynamic microphones?

TABLE 1

EPI SUBJECT AREAS

SUBJECT AREA NUMBER	SUBJECT AREA TITLE
A1	Direct/Alternating Current
A2	Electro/Mechanical Devices
A3	Solid-State Circuits and Devices
A4	Tubes
A5	Soldering or Solderless Connections
B1	Multimeters
B2	Oscilloscopes
B3	Signal (Function) Generators
B4	Test Equipment
C1	Transistor Amplifier Circuits
C2	Transistor Amplifier Stabilization Circuits
C3 C4	Coupling Circuits
C5	Electron Tube Amplifier Circuits Operational Amplifiers
C6	Magnetic Amplifiers
D1	Power Supply Circuits
D2	Power Supply Filters
D3.	Power Supply Voltage Regulators
ĔĬ	Resistive Capacitive Inductive Circuits
E2	Frequency Sensitive Filters
F1	Oscillators
F2	Multivibrators
F3	Waveshaping Circuits
F4	Limiter/Clamper Circuits
G1	Digital Logic Numbering Systems and Functions
G2	Computers
G3	Digital Circuits
G4	Digital to Analog (D/A) and Analog to Digital (A/D) Converters
Н1	Connections (Transmission Lines and Waveshaping Circuits)
H2	Microwave Oscillators and Amplifiers
Н3	Resonant Cavities
H4	Transmitters and Receivers
. Н5	Antennas
I1	Radio Frequency Measurements
12	Radio Frequency Calculations
J1	Microphones and Speakers
J2	Photosensitive Devices
J3	Storage Type Display Tubes
J4	Television, Laser, and Infrared Systems

SURVEY ADMINISTRATION

As mentioned in the PREFACE, data were collected for this survey from over 80 AFSs (78 AFSs, three Reporting Identifiers). Survey data were collected in four increments, from March 1987 through March 1989. A total of 24,651 EPI booklets were mailed to active duty airmen worldwide. After each of the first three increments, interim survey reports were published by USAFOMC. These reports are all numbered AFPT 90-EPI-825, and are dated July 1988 (EPI-1), January 1989 (EPI-2), and February 1989 (EPI-3). There was no separate report of data collected in EPI-4. Results were combined with those of the first three increments to produce the final reports. There are a total of five final EPI reports, one for each of the following: Chanute TTC, Keesler TTC, Lowry TTC, Sheppard TTC, and the Air Force Military Training Center (AFMTC), located at Lackland AFB. This report presents results only for AFSCs with technical training courses at Sheppard Technical Training Center. EPI results for the following AFSCs are included in this report:

<u>AFSC</u>	TITLE .
30653	Telecommunications Systems Maintenance
36150	Antenna/Cable Systems Project/Maintenance Action
36151	Cable Splicing Project/Maintenance Action
36251	Telephone Switching
36253	Missile Control Communications Systems
36254	Telephone and Data Circuitry Equipment
54250	Electrician
54251	Electric Power Line
54252	Electrical Power Production
54550	Refrigeration and Air-Conditioning
54552	Heating Systems
54573	Civil Engineering Control Systems
91850	Biomedical Equipment

Survey administration for these 13 AFSCs was spread over three increments of the EPI, from March 1987 through September 1988. To be eligible for the survey, airmen in these specialties had to have at least 4 weeks experience in their job, could not be within 90 days of retirement, nor expecting reassignment within 60 days. A random sample of survey eligible personnel was selected, and booklets were mailed to airmen worldwide. All useable EPI booklets that were returned to USAFOMC were included in the final samples. Table 2 shows the number of assigned personnel at the time of survey, as well as final sample size, for each AFSC in this report.

TABLE 2
SPECIALTY REPRESENTATION OF SURVEY SAMPLES

DUTY AFSC	TOTAL <u>ASSIGNED</u>	SURVEY SAMPLE
30653	997	237
36150	339	127
36151	427	138
36251	528	172
36253	60	34
36254	592	180
54250	871	187
54251	362	138
54252	1,297	186
54550	899	211
54552	931	191
54573	92	51
91850	263	132

RESULTS

Each completed EPI survey booklet shows which electronic principles the respondent uses in his or her present job. When the responses of all survey respondents from a specific group are combined, the results are shown as percent of group members using each of the 712 EP items. This listing of all EPI items and the percent of group members responding "Yes" is the EP "profile" of that group. Appendix A shows percent group members responding "Yes" information for all 712 EPI items, listed in EPI job inventory order.

To facilitate development of Specialty Training Standards (STSs), subject-matter experts (SMEs) matched EPI items to appropriate block(s) of the Electronic Fundamentals/Applications (EF/A) part of the STS, also known as the STS Attachment 2. For this study, a "generic" version of the EF/A STS was used for the match. All blocks of the EF/A were matched, and the proficiency codes are NOT specific to individual AFSCs. Still, this information (located in Appendix B) can be used to determine which blocks of the STS Attachment 2 should be included in individual STSs.

Subject-matter experts also matched EPI items to the objectives from Plans of Instruction (POIs) for Air Force courses which teach electronic principles. This match of EPI items to appropriate POI objective(s), when combined with survey data, shows how well the POI objectives are supported. For example, if many group members respond "Yes" to the EPI items matched to an objective, then that objective is considered well supported by survey data. If, however, few group members respond "Yes", the objective is not well supported.

For this study, SMEs matched the 712 EPI items to the POI for course J3AQR30020, dated 31 October 1984. This match (with survey data) is shown as Appendix C of this report. The first section shows the EPI items matched to the POI, while the second section shows the EPI items which were not referenced to any POI objectives.

Following is a summary of the Appendices, which show the survey results:

Appendix A: Sheppard TTC AFSCs EP data in EPI job inventory order

Appendix B: Sheppard AFSCs EP data matched to Electronic Fundamentals/Applications (EF/A) STS

Appendix C: Sheppard CETP AFSCs EP data matched to POI J3AQR30020, dated 31 October 1984

DISCUSSION AND IMPLICATIONS

We collect EPI data to assess the use of EP by different Air Force specialties. For each AFSC surveyed, this data shows the percent members responding "Yes" to each of the 712 EPI items. We can use this data to select for each AFSC the items we wish to include in centralized training. Once we've selected for each AFSC the EPI items we wish to include in centralized training, we can look for commonalities among those items for the possibility of combined electronic principles training.

How should we use the EPI data to select the items we wish to include in centralized training? Currently, there is no regulatory guidance on the use of EPI data for the development of centralized training programs (or STSs). ATC Regulation 52-22 states only that "EPI studies provide valuable information for curriculum development or validation in terms of percent members requiring a range of electronics principles knowledge in the performance of their job." Lacking direction from regulations, we must devise an intelligent method for using this data.

The EPI percent members responding "Yes" data lends itself to the use of a cutoff score for selecting items to teach in centralized training. For each AFSC, EPI items at or above the cutoff score are selected for centralized training, while items with scores below the cutoff (in percent members responding "Yes") are left for other training methods, such as on-the-job training (OJT). This cutoff score can theoretically be anything from one to 100 percent members responding "Yes". If we select 1 percent as our cutoff, we must train all airmen in all EPI items used throughout the AFSC. If 100 percent is selected, we will only train the EPI items used by every airmen within the AFSC. These cutoffs are the extremes, so we should find some middle ground for our cutoff score.

For example, if we select a cutoff score of 50 percent, it means that the EPI items we train will be used by at least every other student. Similarly, if we select items with 20 percent members responding "Yes" as our cutoff, we know that at least every fifth student will need to know those items. The task is to select a cutoff which provides training that is effective without being excessive. Therefore, the practical upper limit for this cutoff score should be 50 percent members responding "Yes" (any higher, and training would be ineffective). Twenty percent should be considered the practical lower limit (any lower, and training would be excessive).

Regardless of the cutoff scores selected, there are some basic observations we can make from survey data which indicate areas needing review. The first concerns the selection of AFSCs to attend the common EP course. The data show that some AFSCs which do not currently attend the Sheppard EP course may benefit from attending. Second, the course content needs review, as evidenced by several POI objectives with little support from survey data, as well as some EPI items which have relatively high percent members responding "Yes", but are not referenced to any objective.

Table 3 shows the total number of EPI items and the number of EPI items used by 30 percent of members for each AFSC in this report. This cutoff of 30 percent is only an example, but serves to show the trend of EP use among the AFSCs. These data show that some AFSCs which do not attend the EP course use as many or more EPI items than AFSCs which currently attend. Training personnel for these AFSCs should consider sending their personnel through the Sheppard EP course. These AFSCs include 361X0, 361X1, 542X0, 542X1, 542X2, 545X0, 545X2, and 545X3.

The second area for consideration, as mentioned above, is the current course content for the Sheppard EP course. Brief examination of the information in Appendix C reveals some areas where improvements may be possible. The survey data show very weak support for three of the POI objectives (VI 2c, VI 2d, and VI 2e). For each of these objectives, all of the five AFSC groups which currently attend the course had less than 30 percent members responding "Yes" to the matched EPI items. Also, 21 POI objectives were supported by only one of the five AFSC groups. That is, for each of these 21 objectives, only one AFSC of the five reported that matched EPI items were used by 30 percent or more of group members. These objectives should be reviewed to see if they are best taught in the common EP course, or if perhaps they may best be left to individual AFSC-awarding courses.

Furthermore, there are 72 unmatched EPI items which had at least 30 percent members responding "Yes" in at least two of the AFSCs which currently attend the EP course. These items are found in Appendix C in the TASKS NOT REFERENCED section. Some examples of these items are listed in Table 4. These items should be reviewed for possible inclusion in the Sheppard EP course, regardless of whether new AFSCs are selected for attendance or not.

These two areas for course review (unsupported POI objectives and items which appear supported by survey data but are not included in the course) are only beginnings of the in-depth review of all survey data that will be necessary. Some additional considerations will include whether or not new AFSCs attend the EP course, scheduling of instruction topics, and financial constraints.

In conclusion, the data presented in this report should serve as the foundation for selecting the EPI items to train in centralized courses. Once this foundation, based on the EP use of each AFSC, is determined, it can be modified by these other considerations, resulting in a plan for training which is mindful of each specialty's needs, while avoiding excesses that waste precious Air Force resources.

TABLE 3

NUMBER OF TOTAL EPI ITEMS USED/

NUMBER OF EPI ITEMS USED BY 30 PERCENT OF GROUP MEMBERS

(BY AFSC)

DUTY <u>AFSC</u>	ITEMS USED BY 30 PERCENT	(OTAL <u>USED</u>
*30653	222	624
36150	60	274
36151	27	340
*36251	51	619
*36253	132	408
*36254	33	623
54250	64	562
54251	57	259
54252	89	56 9
54550	46	19 9
54552	32	-339
54573	85	621
*91850	359	655

^{*} Denotes AFSCs which currently attend the Sheppard EP course

TABLE 4

EXAMPLES OF EPI ITEMS NOT REFERENCED TO POI WITH AT LEAST 30 PERCENT MEMBERS RESPONDING "YES" IN AT LEAST TWO AFSCS

ITEM	ITEM NUMBER/TITLE	306	362 51	362	362	918
A1-17	Do you adjust relays	38	69	89	42	71
A1-18	Do you perform tasks on contacts, cores, coils, armatures, or springs	89	71	89	46	93
A1-42	A1-42 Do you trace schematic or block diagrams of circuits containing three phase transformers	31	6	56	ហ	99
A3-2	Do you troubleshoot circuits to isolate a faulty diode	82	47	82	28	93
A3-10	Do you check transistors using transistor testers	09	11	44	7	67
A3-14	Do you troubleshoot circuits to isolate a faulty IC	79	10	35	13	90
D1-3	Do you troubleshoot circuits to isolate a faulty power supply	88	37	85	89	92
02-4	Do you troubleshoot power supply filters to circuit level components	49	က	35	4	73
D3-4	Do you troubleshoot power supply voltage regulators to circuit level components	. 29	ស	41	က	82
F2-3	Do you troubleshoot to isolate a faulty multivibrator circuit	39	က	24	-	58
61-35	Do you perform tasks related to exclusive OR/NOR logic functions	54	10	12		70
H1-7	Do you troubleshoot transmission lines	14	38	15	37	33
H1-9	H1-9 Do you perform tasks on twisted pair transmission lines	15	42	15	44	4

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Program	PRIMOD	PRTMOD	PRTMOD
Report Element Program Title	RP0002	2. RP0003 PRTMOD	3. RP0014 PRTMOD
Report	1.	2	ņ

Order)
(Inventory
TTC AFSCs
Sheppard
A11
PRIMOD

Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX

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PM0001

Report Option Table for Modules

Status

Option

Inventory Sequence Not Used Not Used Primary Sort Secondary Sort Print Suppress

Report Option Table for Tasks

Inventory Sequence Not Used Not Used Status Secondary Sort Print Suppress Primary Sort Option

Description of Reported Module Factors

Valid ----- Based on All Tasks Within Range Mean S.D. Max Min Number Members Module Statement Col Factor Source vector Title 1 TITLE

Description of Reported Task Factors

,		•		Number	seg	ed on All	Based on All Tasks Within Range	Range	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Col	Factor	Source vector	Title	Members	Mean	S.D.	₩ X	Hin	Valid
1	TITLE		Task Statement						
7	F0026	GP0029/PMP	A11 DAFSC 30653	237	22.69	24.98	98.73	5	21.2
M	F0027	GP0030/PMP	A11 DAFSC 36150	127	92.9	17.04	91.20		712
4	F0028	GP0031/PMP	A11 DAFSC 36151	138	2 63	בא רב רא רב	21.00	3	777
7	F0029	GP0032/PMP	A11 DAFSC 36251	173) a	10:11	07.15		71/
•	60020		11 DATE - 114	7/1	0	12.70	45.55	9	717
D I		Groups/rnr	ALL DATSC 36253	34	16.51	25.87	100.00	00.	712
•	F0031	GP0034/PMP	All DAFSC 36254	180	5.57	13.93	95.00	00.	712
∞	F0032	GP0035/PMP	A11 DAFSC 54250	187	8.04	17.42	98.93	00	212
•	F0033	GP0036/PMP	A11 DAFSC 54251	138	6.51	17.94	98.55		212
10	F0034	GP0037/PMP	A11 DAFSC 54252	186	9.74	20.06	95.70	9	712
=======================================	F0035	GP0038/PMP	A11 DAFSC 54550	211	5.63	17.53	96.21	00	21.2
12	F0036	GP0039/PMP	A11 DAFSC 54552	191	4.25	13.00	89.01	8	712

N	Valid	712 712
Page		0.00
Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Based on All Tasks Within Range Mean S.D. Max Min	98.04 99.24
tional Ana C (ATC) Ra	ed on All S.D.	20.63
Occupa USAFOM	Mean	14.58 35.97
	Number Members	51 132
PM0001		
All Sheppard TTC AFSCs (Inventory Order)	Title	All DAFSC 54573 All DAFSC 91850
1 Sheppard TTC	Col Factor Source vector	GP0040/PMP GP0044/PMP
	Factor	F0037 F0041
PRTHOD	Col	13

M

Electronic Principles Inventory (EPI) data for Air Force specialties is presented below in job inventory order. Data for this report was collected from job incumbents during the period March 1987 - September 1988 Percent members responding "YES" is shown for each specialty listed.

For assistance in using this EPI printout phone USAFOMC/OMYA, at AUTOVON 487-6811.

0 7 Tsk Y Nbr

Task Title

EPI Electronic Principles Inventory 1000

General Electronic/Electricity

Al Direct/Alternating Current 1 1. 0003

Al-1 Do you use metric terms (example mili, kilo, mega)	99	949	53	55 68		25 70	9 62	2 70		9			
Al-2 Do you use basic DC electrical/electronic terms	97	99		5 10									
Al-3 Do you use basic AC electrical/electronic terms				9				3 95	96			66	
Al-4 Do you trace schematic or block diagrams of circuits		54 4		2 10		95 9		¥ 87	46	98	96		
containing conductors, fuses, lamps, switches, or batteries													
Al-5 Do you troubleshoot circuits containing conductors,	76	53 (6 29	16 16		6 56	26 66	06 /	96	68	4	98	
fuses, lamps, switches, or batteries													
AI-6 Do you calculate values of DC voltage, current, resist-	48	23	51	34 6	68 2	26 6	61 46	48	30	28	57	79	
ance, or power													
Al-7 Do you calculate values of AC effective voltage,	64	18	14	24	68 17	7 65	5 51	1 37	27	25	29	67	
average voltage, or peak-to-peak voltage													
Al-8 Do you calculate values of frequency, phase	47	27 2	22	28 7	11 12	1 44	4 29	34	18	13	24	2	
relationship, or wave length													
Al-9 Do you trace schematic or block diagrams of circuits	92	33	11	69	97 5	52 46	5 57	7 75	36	23	82	97	
containing resistors													
Al-10 Do you troubleshoot circuits to isolate a faulty	89	21	12 62	ď	91 2	24 36	5 57	7 70	31	20	75	96	
resistor													
Al-11 Do you calibrate or adjust circuits by using	85	11	8 49		88 21	1 29	38	3 60	25	12	19	95	
Al-12 Do you calculate the value of a resistor required	43	æ	6	29	59 10	0 27	7 30	37	18	10	53	65	
Al-13 Do you determine ohmic value of a resistor using	69	14	5	5	5 43 74 13		31 46	2 45	19	13	78	93	
the color code													
Al-14 Do you ohm check resistors	16	31	<u>8</u> 7	ۍ ص	2	7	32	18 58 91 27 43 58 76 32	32	23	82	96	

A 12

A 14

PRTMOD

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≓ 3 ⊢ >	TSK TSC TSC)	306	361	361	362	362	362	542	542	542	545	545	545	918	
		2	2	10	10	o o	ñ	0	10	70				2	
· ·	schematic or block diagrams of	circuits 78	37		4 78	96	11	75	74	82	16	19	94	96	
< <	containing relays 16 Al-16 Do you troubleshoot circuits to isolate a faulty	92	36		4 77	16	62	76	77	81	92	99	92	96	
	relay														
⋖	Al-17 Do you adjust relays	38			5 69	68	45	53	25	53	43	30	63	17	
	18 Al-18 Do you perform tasks on contacts, cores, coils,	89	77		7			77	69	19	84	45	75	93	
	armatures, or springs 19 Al-19 Do vou continuity chack ralays	72							72	2	88	54	60	60	
. ⋖	A1-20 Do you trace schematic or block diagrams of	circuits 60	3 ~		55	7	19	19	27	35	'n	و ۲	2 ,	, 8	
	containing inductors, chokes, or choke coils														
<	21 A1-21 Do you troubleshoot circuits to isolate a faulty	58		α.	7 20	65	∞	17	56	33	M	4	25	80	
	inductor, cnoke, or cnoke coil 22 Al-22 Do you calculate values of circuit total inductance	17			3		3	13	9	19	4	M	18	39	
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C 228	coupling circuit (3-4 Do you troubleshoot coupling circuits to circuit level components	56	0		2 21	7	M	-	7	•	•	10	70	
C 229 C 230	C3-5 Do you perform tasks on direct coupling circuits C3-6 Do you perform tasks on capacitive-resistive coupling	÷ 12	2		2 21 2 24	м м 	0.0		W 61	00	0 0	& &	67 61	
C 231	circuits C3-7 Do you perform tasks on capacitive-inductive coupling circuite	22	_	0	2 21	Α.	~	•	8	•	•	€	57	
C 232	C3-8 Do you perform tasks on transformer coupling	27	7		2 21	ю.		~	8	7	•	10	49	
C 233	C3-9 Do you perform tasks on optical coupling circuits	19	0	J.		6 2	2	•	1	0	0	10	45	
0017	III 4. C4 Electron Tube Amplifier Circuits		-	-										
C 234	C4-1 Do you trace block diagrams of circuits containing	8			4		٦.	•	-	•	0	9	18	
C 235	C4-2 Do you trace schematic diagrams of electron tube amplifiers	8	0		4	. 0		6	1	0	0	0	16	
C 236	C4-3 Do you troubleshoot to isolate a faulty electron tube amplifier	8	•		J	0		•	1	0	•	0	16	

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T Tsk	Tack Title	306 361	361	362	362	362	542	542 5	542 5	545 54!	ın	м	918
			TC	16	ç								5
C 237	S	1 0	0	м	0	1	7	•	-	0	0	2	17
C 238	3	1 0	•	м	0	-	0	0	-	0	0	8	10
	tortion		٠		•	٠	•	•	-	•			-
C 240	C4-6 Do you measure electron tube amplifier voltage.	9 Q	9 0		•	٦,	- 0	- 0			- 0	u 0	11
	current, or power gai		,		•	ı	,	,	1	,			
C 241	٥	7	•	ω	0	-	0	0	H	0	0	7	6
	voltage, current, or power gain	,	,		•								
C 242	: C4-9 Do you perform tasks on paraphase electron tube	1	7	•	•	•	0	0	-	0	0	N	•
C 243		0	0	_	-	-	•	-	,	-	0	^	11
	amplifiers			I	•	1	•	•	•	,	,		:
C 244	C4-11 Do you perform tasks	0	•	_	•	~	-	0	0	•	0		80
		2	•	-	0	-	-	7	7	0	_		15
776	TUDE BEDI-TIEFS	•		-	•	-	•	•	-	•	•	c	7.
	amplifiers			•	>	4	•	•	-	-	>		9
C 247	S	1		0	0	-	0	0	-	0	0	2	16
	amplifiers												
C 248	ပ	0			•	-	0	0	-	0	0	N	14
	amplifiers												
0018	III 5. C5 Operational Amplifiers		:	!	1	!				i i i	-	:	! !
C 249	٥	30 0	-		29	2	•	0	4	0	-	12	85
	containing operational amplifiers (op amps)												
	C5-2 Do you troublesho	26 0	_	•	56	α.	M)	0	Ŧ	o			83
C 251	C5-3 Do you calculate op amp gain				12	۰ ہ	m (0	0	0	-		53
	C5-4 Do	9 10	٦,	J 1	77	٦,	N 1	-	ν (-			50
7 253	(C)-5 DO YOU US® OF APPLY OPERATIONAL AMPLITIENS TOF	2			18	⊣	n	>	N	5		2	:
C 254	O	15 0		0	0	7	8	٥	~	0	0	10	73
	differential/comparators					I	ı	,	ı	,			,
C 255	S	8		0	ю	-	8	•	м	0		80	19
7 256	Summing Fra Do voi nee or end's operational emplitiers for	α	-		4	-	c	-	c	-	•	4	87
	unity dain amplifier (buffer)		•		•	•	1	•	ı	•	•		3
C 257	C5-9 Do you use or app	8		~	9	7	8	0	0	•	0	ω	48
	active filters			•	;	•	•						
222	oscillators	e AT	-	NI L	77	Ν.	N	-	'n	0	•	07	19
C 259	S	9		0	•	7	8	0	8	0	0	80	58
	integrators												
C 260) C5-12 Do you use or apply operational amplifiers for	6		0	0	7	N	0	N	0	0	•	26
C 261	J	29 0		0 2	18	9	4	-	Ŋ	-	0	16	89
	power supplies (voltage regulators)							ı	ı	ı			
4	- 12 -												

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D T Tsk Y Nbr	Task Title	306 3 53	361 3	361 3 51 5	362 3 51 5	362 36; 53 54	N	542 542 50 51		N	545 545 50 52	5 545 73	5 918 50	æ		
C 262	tional ampli	54	7	8	R	6	0	м	0	6	m	2 1	14 6	59		
C 263	analog/digital (A/D) digital/analog (U/A) converters C5-15 Do you use or apply operational amplifiers as	27	•	0	1	15	-	0	0	1	-	-	8	59		
C 264	modulators/demodulators modulators/demodulators	16	•	•	61	12	-	8	•	-	•		ю 60	38		
0019	III 6. C6 Magnetic Amplifiers					1 1 1			}				!			
C 265	C6-1 Do you trace block diagrams of circuits containing	-	•	-	61	0	-	м	-	80	•		4	8		
C 266	magnetic amplituers (6-7 Do you trace schematic diagrams of magnetic	7	0	0	0	٥	7	м	7	7	٥	•	•	0		
C 267	empiritar circuits 2 Do you troubleshoot to isolate a faulty magnetic 2	-	•	•	-	0		ю	-	7	•	•	4	8		
C 268	C6-4 Do utroubleshoot magnetic amplifiers to circuit level components	4	•	•	-	0	0	8	-	4	0		a	8		
C 270	C6-5 Do you adjust magnetic amplifiers or components C6-6 Do you trace block diagrams of circuits containing	٠,0	00			00	00	27		96			0 0	0 0		
C 271	saturable reactors C6-7 Do you trace schematic diagrams of saturable reactor circuits	•	•	-	~	•	0	-	-	6	•	•	8	8	•	
C 272	C6-8 Do you troubleshoot to isolate a faulty saturable	0	0	-	-	•	•	_	0	ω			8	4		
C 273	reactor C6-9 you troubleshoot saturable reactors to circuit lavel commonents	•	•	-	•	•	•	1		∞	0	0	N	0		
C 274		•	•	н	0	•	•	H	•	60		-4	8	а		
0050	IV. Power Supplies	•				į			! ! !	}	1	:				
0021	IV 1. D1 Power Supply Circuits								i	;	1 1 1	;	-	:	;	
D 275	DI-1 Do you trace block diagrams of circuits containing	89	•	-	38	91 (45 4	48 3	39 3	32 2	29 21	1 75	5 92	A 1		
D 276	power supprises D1-2 by you trace schematic diagrams of power supply circuits	89	89	-	32	88	37 4	48	42 3	32 2	28 21	1 75	5 92	A 1		
D 277	DI-3 Do you troubleshoot circuits to isolate a faulty	88	7	-	37 (85 (5 89	49 43		35 2	29 25	5 78	3 92	6 1		
D 278	D1-40 Interpret toubleshoot power supplies to circuit	81	4	-	. 22	62	22 3	37 30	0 27		23 17	7 61	1 92	A 1		
D 279 D 280	D1-5 Do you align or adjust power supplies D1-6 Do you perform tasks on half-wave rectifier power supplies	82 61	22		26 1	88 59	5 2	23 3	30 2 2 2	23 1	10 10 5 3	3 39	85	10.10		

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Y Nbr	Task Title				53								
D 281	DI-7 Do you perform tasks on full-wave rectifier	99	7	0 17	74	^	23	м	34		3	7 87	
D 282	power supplies D1-8 Do you perform tasks on full-wave bridge rectifier	99	2 1	€	53	10	25	6	37 1		3 57	7 91	
D 283	D1-9 Supplies D1-9 D1-9 D1-10 perform tasks on three-phase rectifier power simplies	17	0	13	6	4	17	~	56	ω	0	8 50	
D 284		37	1	- 7	21	9	12	•	10	·'	2 12	2 64	_
	tasks on DC to DC conve	41	2 1			6	15					6 50	_
D 286	D1-12 Do you perform tasks on inverters (DC to AC converters)	36		24	32	13	19	∞	15	<u>.</u>	5 20		
D 287	D1-13 Do you perform tasks on switching power supplies	12	0		•	9	•	•	2		-	4 59	
0022	IV 2. D2 Power Supply Filters	 		1				1			-		
D 288	D2-1 Do you trace block diagrams of circuits containing	58	0		25	∞	14	8	80		1 27	77 77	
D 289	D2-2 Do you trace schematic diagrams of power supply	25	0	- 5	47	9	13	_	∞		1 25	5 77	
600					ļ								
D 290	UZ-3 UO you troubleshoot circuits to isolate a faulty power supply filter	27	-		44	7	14	-	∞	2	1 24	4 73	
D 291	D2-4 Do you troubleshoot power supply filters to circuit	46	, o	m	35	5	12	-	9	, L	1 22	2 73	
D 292	<pre>Level components D2-5 Do you perform tasks on capacitive power supply filters</pre>	20	1 0		47	٠	10	_			ć		
	tasks on inductive power s	38				•	9	. 0			181	9 2	
D 294	tasks on L-type power supply t	23				~	ю	0					
0 296	D2-9 Do you perform tasks on ri-type power supply filters D2-9 Do you perform tasks on I-type power supply filters	<u> </u>)	- 0	6 4		~ ~	o c	m c			92 6	
D 297	s on resistive ca	46			4	1 3	1 00			· ·	ה ס		
D 298	power supply filters D2-11 Do you perform tasks on inductive capacitive (IC)	37	-	•	K		α	•	4		7 -		
		i			3	,	,	•	•				
0023	IV 3. D3 Power Supply Voltage Regulators	! ! ! !					:	1	:				
D 299	D3-1 Do you trace block diagrams of circuits containing	89	2	∞.	62	7	19	30	44	9	5 25	86	
6	,				,	,	,						
3	to to you crace screments dragrams of power supply voltage regulator circuits	,	7	A	62	.	61	32	2	9	52	87	
D 301	D3-3 Do you troubleshoot circuits to isolate a faulty power supply voltade regulator	99	1 0	∞	20	9	18	38	25	5	. 25	84	
D 302	D3-4 Do you troubleshoot power supply voltage regulators to circuit level components	59	1 0	70	41	м	16	28	31	4	54	. 82	
D 303	D3-5 Do you perform tasks on variable resistor power supply voltage regulators	57	0	•	20	м	14	12	32	2	50	80	

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D T Tsk Y Nbr	Task Title	306 361 53 50	1 361 51	1 362	362	362 54	542 50	542 51	542	545 5 50 5	545 54! 52 73	ю	918 50		
D 304	D3-6 Do you perform tasks on zener diode power supply voltage regulators	57	•	1 3	56	М	•	r	20	0	м	14	83		
D 305	D3-7 Do you perform tasks on transistor series power supply voltage regulators	95		1 2	50	8	7	8	10	0	м	18	72		
D 306	D3-8 Do you perform tasks on IC power supply voltage requiators	36				-	Ω	м	9	•	η.	16	72		
D 307	perform tasks on pu	15		1 0	-	7	8	-	8	0	8	9	59		
D 308	D3-10 Do you perform tasks on transistor series power supply voltage required to the property of the property	33			. 24	N	9	м	9	•	8	10	55		
D 309	D3-11 Do you perform tasks on crow bar power supply voltage regulators	13	6	0	•	7	8	*	8	•	8	•	17		
0024	V. Reactive Circuits						;	1				i !			
0025	V 1. El Resistive Capacitive Inductive Circuits	! !						!				į			
E 310	block diagrams of	34		1 7	56	M	4	0	6	0	•	12	49		
E 311	containing resistive capacitive inductive (RCL) circuits E1-2 Do you troubleshoot RCL circuits to circuit level	32		1 2	. 21	~	4	•	6	0	•	10	9 9		
E 312	components El-3 Do you trace schematic or block diagrams of circuits	23		4	21	M	4	0	4	0	•	€0	52		
E 313	containing resonant RCL circuits E1-4 Do you troubleshoot resonant RCL circuits to	21		3	18	~	4	•	м	0	•	40	52		
E 314	circuit level components El-5 Do you calculate values of impedance, voltage, or	13		3	21	8	4	-	4	0	0	•	30		
	current in KCL circuits E1-6 Do you calculate phase angle of RCL circuits	7					~	•	^	G	•	•	2		
E 316	calculate values of power in	10		0	m	7	М	· ~	м	• •	• •		53		
0026	V 2. E2 Frequency Sensitive Filters	; ; ;							į		ĺ				
E 317	trace schematic or b	6		3	53	M	M	•	ю	•	•	4	30		
E 318	Containing frequency sensitive filters E2-2 Do you troubleshoot circuits to isolate a faulty	10		ю 0	53	4	м	0	M	0	0	4	59		
E 319	requency sensitive filter E2-3 Do you troubleshoot frequency sensitive filters to	•	-	-	32	-	ю	•	8	•	0	•	28		
E 320	circuit level components E2-4 Do you align or adjust frequency sensitive filters	60	_		21	-	8	0	8	0	0		2		
E 321	E2-5 Do you calculate capacitance or inductance values for specific fractions, cancifice filters	ю	0	-		-	7	•	~	•		· •	16		
E 322	E2-6 Do you perform tasks on low pass francisms careities to the first tasks on the first tasks on the first tasks to the first tasks tasks the first tasks tasks the first task	10	-	٦ 0	20	8	0	•	7	•	•	•	33		
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D														
T Tsk		306 3	61 3	51 36	2 36	2 36	2 543	545	545	545	545	545	918	
Y Nbr	Task Title	53 50 51 51 53 54 50 51 52 50 52	6	2	. 53	54	20	51	52	20	25	73	20	
E 323	E2-7 Do you perform tasks on high pass	œ	~	~	~	50	" ~	٠.	8 1 1 1 35 1 2 0 1 0 0 6 33	0	٥	9	33	
	frequency sensitive filters													
E 324	E2-8 Do you perform tasks on band pass	ဆ	~	_	1 2 26	و.	~	_	-	•	0	0 8	33	
	frequency sensitive filters													
E 325	E2-9 Do you perform tasks on band-reject	m	0	0	0 0 1 12		~	_	•	0	9 0 0	9	23	
	frequency sensitive filters													
E 326	E2-10 Do you parform tasks on ferrite bead	0	0	0	0 0 0 3	m	0	1 0		0	0 0 6 11	9	7	
	frequency sensitive filters													
						1				 		1		
0027	VI. Waveshaping/Generating Circuits													

S 0 0 5 65 2 3 0 4 0 0 8	rcuits 34 0 1 4 56 1 3 0 4 0 0 8 or 33 0 1 5 62 1 2 0 4 0 0 6	30 1 1 2 18 1 2 0 3 0 0 6	30 0 1 7 56 2	19 0 1 2 29 1 3 0 4 0 1	5 1 3 0 4 0 3 0 1 0 2 0	or 11 0 1 1 12 1 2 0 3 0 0 6	r 11 0 1 1 12 1 2 0 2 0 0 6	ts 2 0 0 1 1 9 1 1 0 1 0 0 6 1 1 1 0 1 0 0 6 1 1 0 0 1 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0 1 0	14 2 0 2 12 1 2 1	uits 30 1 0 2 9 1 3 0 3 0 0 8 6 0 1 1 6 1 1 0 1 0 0 6	ator 16 0 1 3 29 1 2 0 2 0 0 4	ator 3 0 1 0 0 1 0 0 2 0 0 4	ors 10 0 1 1 21 0 1 0 3 0 0 6
0026 VI 1. Fl Oscillators F 327 Fl-1 Do you trace block diagrams of circuits containing oscillators	328 F1-2 Do you trace schematic diagrams of oscillator circuits 329 F1-3 Do you troubleshoot to isolate a faulty oscillator circuit	330 F1-4 Do you troubleshoot oscillators to circuit level components		333 F1-7 Do the oscillators you work with use RC networks	334 F1-8 Do the oscillators you work with use crystals 335 F1-9 Do the oscillators you work with use phase lock	loops (PLL) 336 Fl-10 Do you perform tasks on series Hartley oscillator circuits	337 First Do you perform tasks on shunt Hartley oscillator circuits	L 14	tasks	341 F1-15 Do you perform tasks on crystal oscillator circuits 342 F1-16 Do you perform tasks on Wien bridge oscillator circuits	343 F1-17 Do you perform tasks on pulse generating oscillator circuits	F 344 F1-18 Do you perform tasks on blocked/blocking oscillator circuits	F 345 F1-19 Do you perform tasks on burst generators F 346 F1-20 Do you perform tasks on RC phase shift oscillators

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0029	VI 2. F2 Multivibrators				1				1	1	1		:		!	
F 347	F2-1 Do you trace block diagrams of circuits containing	4	•	0	3 2	56	2		7	•	•	•	59			
F 348	multiviprators F2-2 Do you trace schematic diagrams of multivibrator	42	0	•	м	54	1 1		~	•	0	9	59			
F 349	circuits F2-3 Do you troubleshoot to isolate a faulty multivibrator	39	0	0	3	54	1	•	0	0	0	•	58			
F 350	F2-4 pour troubleshoot multivibrators to circuit	35	•	•	1 21	-	-		8	•	•	9	56			
F 351 F 352	rever components F2-5 Do you adjust or align multivibrator circuits F2-6 Do the multivibrators you work with use LC tank	27		00	3 1 2	21 12			~ ~	00	• •	• •	51			
7	A transfer										•	•	?			
F 354	rc-/ Do the multivibrators you work with use KC networks F2-8 Do the multivibrators vou work with use Crystals	52 77		.	- 	19 19	 			0 0	0 0	9 9	4 2			
	form tasks on astable (free running)	. 4			5		. 0		• ~	•	•	•	28			
F 356	multiviprators F2-10 Do you perform tasks on monostable (one shot)	41	0	0	2	54	1 1	•	-	0	0	9	57			
F 357	muliviorators F2-11 Do you perform tasks on bistable (flip flop) multitibutors	95	•	•	2	29	1 1		8	•	0	9	58			
F 358	F2-12 Do you perform tasks on triggered astable multivibrators	56	•	•		6	1 1		1	0	•	•	8			
0030	VI 3. F3 Waveshaping Circuits		-	į		}			!						1	
F 359	F3-1 Do you trace block diagrams of circuits containing	33	•	0	8	ю	2		-	0	•	N	65			
F 360	diagrams of WSC	33	0	0		м	~		~	0	0	8	61			
		30 27				9 M	7 7			0 0	00	~ ~	5 9			
F 363	F3-5 Do you adjust or calibrate WSC	25	0	0							0	8	58			
	ro-o bo you perform tasks on sawtooth wave generator wol. F3-7 Do you perform tasks on trapazoidal (ramp) wave	14 6	- 0						2 1	00	00	N N	58 55			
F 366	differentiating	6		•	_				7	•	0	8	36			
	Jo you perform tasks on RL differentiat: Do you perform tasks on RC integrating	10									00	0 N	32 34			
	Do you perform tasks on RL integrating WSC Do you perform tasks on square wave generator WSC	31				0 M	2 2		0 0		• •	0 0	32 63			
F 372	r3-13 Do you perform tasks on rectangular wave generator WSC F3-14 Do you perform tasks on Schmitt trigger WSC	33	00	00				00		00	• •	4 10	47			

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0031	VI 4. F4 Limiter/Clamper Circuits				į									;
F 373	F4-1 Do you trace block diagrams of circuits containing	20	•	•	Ħ	เร	-	-	0 1	0	•	4	56	
F 374 F 375	f4-2 Do you trace schematic diagrams of limiter circuits F4-3 Do you trace block diagrams of circuits containing	20 15	0 0	00	00	15 12				00	• •	4 0	58 48	
F 376 F 377 F 378	f4-4 Do you trace schematic diagrams of clamper circuits F4-5 Do you troubleshoot to isolate a faulty limiter circuit F4-5 Do you troubleshoot limiters to circuit level	t 16	000	000	0 1 1	15			000	000	000	440	\$ 7 8 8 2 8	
F 379 F 380	components F4-7 Do you troubleshoot to isolate a faulty clamper circuit F4-8 Do you troubleshoot clampers to circuit level Formander	t 14	00	• •	۰ ۳	12		44	0 0	00	00	N N	4 45 4 45	
7 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Components F4-9 Do you perform tasks on series diode limiter circuits F4-10 Do you perform tasks on shunt diode limiter circuits F4-11 Do you perform tasks on bias limiter circuits F4-12 Do you perform tasks on zener diode circuits F4-13 Do you perform tasks on transistor limiter circuits F4-14 Do you perform tasks on triode limiter circuits F4-15 Do you perform tasks on diode clamper circuits F4-16 Do you perform tasks on bias clamper circuits	72621419	000000	0000000		118 24 24 112 24	нананана	44044040		0000000	n n o o o o o	00440040	25	
0032	VII. Computers, Digital Circuits, and Devices VII. Gl Digital Logic Numbering Systems and Functions													: :
6		:		ı										

0033	VII 1. Gl Digital Logic Numbering Systems and Functions					! ! !	1		! !	:		!	
6 389	61-1 Do you convert decimal numbers to binary numbers or binary numbers to decimal	45 (•	23	5 23 6	α	ю	3 1	α	-	1 1 29		39
6 390	G1-2 Dy you convert octal numbers to binary or binary numbers to octal	53	_	ä	1 13 0 1 3	7	ю	-	8	•	0 16		33
6 391	G1-3 Do you convert hexadecimal numbers to binary or binary or binary numbers to hexadecimal	30	_	1	1 17 3 1 3	-	ю	-	α	0	1 20		30
G 392	G1-4 Do you convert octal numbers to decimal or decimal	27 (_	11	0 13 0 1	1	~	•	7	•	0 14		33
6 393	GI-5 Do you convert hexadecimal numbers to decimal or decimal numbers to hexadecimal	53 (_	7	0 16 9 1	7	м	0	-	•	1 22		53
6 394	61-6 Do you convert octal numbers to hexadecimal or hazadecimal numbers to octal	54 (_	Ξ.	0 11 0 1	-	8	•	-	•	0 12		27
6 395		21 (1 9	0	7	0 1 1	7	N ₂	•	1 10		56
6 396	61-8 Do you add binary numbers	70	•	÷.	4 19 3 3 2 1 2	M	8	7	0	7	1 1 27		39

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397	ou subtract bi	? ?	0		0 /		7	٦.	2	٦,	1 24		6
398	Do you	54	0	3 12			2	-	N	-			_
399	Do you	24	0				N	-	N	_			
400	Do you	54	0		6		N	~	N	0	0 14		~
401	Do you	23					~	-	8	0	17		_
402	G1-14 Do you add hexadecimal numbers	23	0		6		~	0	8	0	0 16		7
403	G1-15 Do you subtract hexadecimal numbers	23	0		0 6		8	0	8	0			7
	-16 Do	30	0	-	Ī	7	M	7	-	•	1 24		M
405	-17 Do you use gray co	m	0				0	•	0	0			21
905 9	-18 Do you use	м	0				0	0	0	0			9
407	-19 Do you use	m	0	0	2 0		0	•	0	0		7 4	7
408	Do vou use	35	0				-	•	0	0			. 60
605	-21 D. you use biguina	4		-	0		0	0	0	0			- LO
410	-22 Do you use	62	0	0			8	~	0	0	~		N
411	Do you use EBCDI	9	0	0	3		0	0	0	0	0		80
	Do you trace data flow	59	0	0	6 15	8	8	7	7	0	0 18		
6 413 (you trace data flow through logic schemat	9	0	0	6 12		7	-	m	•	ä	6 71	_
6 414		28	0		м	N	-	•	0	0	0 12		•
415	G1-27 Do you troubleshoot digital systems subassemblies	28	0		7		М	0	8	0		2 68	80
		į	1										
6 416	ot digital systems, sub	20	-	•	5	-	N	•	0	•	0 12	2 67	7
	rcuit level components or IC												
6 417	GI-29 Do you trace data flow through circuits using positive	52	0		4 12	-	M	0	~	0	0 16	69 9	0
,		;		,	•		(•		,			
6 418		1	-	•	4 12	-	N	•	-	0	0 12	2 51	-
019 3	negative Logic (mign = binary c) [1-1] Do co. perform tacks selet to AND setes	9	c	-	42		4	-	٠	c	200	a	
, ec.,	of before one	ì			, ,			• -	٠,	, ,			
	Andreas related to un gates	77		• • •		V F		٠,	, ·		***		2 3
174		0	>	>				4	٦.	>			,
000	Annual Annual Annual Annual	è	•	•				•	•	•			
275	GI-54 Do you perform tasks related to NAND of NUK gates	א מ	-	 	67 01	N -	* <		.	>	0 75		90
Ş	O	5	•					4	٢	>			•
6 424	G1-36 Do you perform tasks related to RS flip flops	32	•	0	5 12	1	м	0	М	•	0	0	52
455	tasks related to D(Data)	33		•			M	0	8	•	_		95
6 426	perform	36	0	0	6 5	~	м	0	0	0	0		84
427		95	•	0	5 6		M	•	м	•	0	0 55	58
G 428	G1-40 Do you perform tasks related to Schmidt triggers	20	•	•	2 12	٦	7	0	-	•	_		48
459	tasks related to delay (0	35	0	0			8	0	٦	•	_		45
	logic functions												
6 430		58	•	0	3	7	8	0	-	0	•	S.	33
į	R")	,											
	you perform tasks related to	£;		٥,	9 :		M I	0	N 1	0	0 14		63
432	you perform tasks related to inverters	5	0	_	-		M	0	M	0	0 18		72
433	GI-45 Do you perform tasks related to complemented flip	58	0	-			-	•	•	0			•
	Action of the Ac	ć	•		,		•	•	•				
*	you pertorm	۲,	-	>	n n	-	4	>	-	>	- -	t o	5

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Y Nbr	Task Title	53 50	51	1 362 51	295	54 6	50		545 52	50	52 52	73	20 2	
6 435	G1-47 Do vou develop Boolean equations from logic	17	•		0	-	-	0	0	0	0	•	17	
													i	
6 436	G1-48 Do you develop logic diagrams from Boolean equations	14	۰ د		W K	-		0 0	0 0	0 0	0 0	9 4	17	
				•				•	•	•	>	•	ì	
6 438	G1-50 Do you perform tasks on RTL (resistor transistor	54		•	2 0	1	0	0	-	0	0	∞	40	
6 439	10g1c Tormally Duil. 61-51 Do vou merform tasks on DTL (diode transistor logic)	28			0			•	7	0	0	•	41	
0 440	tasks on TTL				9	-	m	0	~	0	0	12	19	
								•	•	,	•	,	;	
1 + + + · · ·	G1-53 Do you perform tasks on ECL/CML (emitter coupled or	13	•	-	0 1	-	-	0	-	0	0	•	20	
		4	_					0	1	•	•	4	18	
6 443	tasks on CMOS (complementary	_			8	~	8		0	0	٥	12	52	
	•													
	Do you perform tasks on positive MOS			0		_		0	_	0	0	9	23	
	you perform tasks on negative MOS	:	۰ د	۰ ،	2,		٠,	0 (٠,	0 (0 (Φ \	22	
955	G1-58 Do you perform tasks on vertical MOS ICs		_	-		-		•	-	•	•	•	15	
0034	VII 2. G2 Computers					į	!							!
255 9	62-1 Do you trace block or schematic diagrams of computer	41	0	1	14 18	4	m	0	7	0	~	16	25	
	٤													
	G2-2 Do you load programs				28 21			~	8	0	-	16	17	
	write or debug programs		_						-	0	~	4	7	
6 450	ot computers to a major unit	4 5		2 .	26 21	.		_	-	0	-	9	19	
6 451	G2-5 Do you troubleshoot computers to a subassembly or		_					•	-	0	-	10	16	
6 452	Carcuat card 62-6 No vou troublashoot computer subassambly or circuit	30	_	_	9	~	M	_	-	-	_	≪	8	
	components or IC			ı					ı	,	•))	
6 453	er flow charts	35			~	M			_	0	-	12	16	
	sks.	18	۰.					_	- •	0 1	8	12	16	
6 455 6 455	62-4 No you pertorm tasks on digital computers 63-10 Do you use Resir commiter lengings	٠ ئ	.	ט ה ט ב	34 21 16 21	0 K			N 6	٦ -	٠ ،	2 6	22 -	
6 457		m						• ~	<i>-</i>	10	1 ~	1 0	•	
	G2-12 Do you use FORTRAN compute	m		_	· F-7				· ~	0	· ~	•	4	
	G2-13 Do you use ADA c			•	0			0	_	0	-	8	M	
	Do you use ATLAS								~	0	~	8	Ŧ	
	Do you use ELAN			0					-	0	-	ο.	M	
6 462	62-16 Do you use	- ·		-					٠,	0	- -	4 (4 12	
200	62-17 Do you use	> √	.	٦,				٦ ٥	٦.	> -	٦,	N	n 1	
	62-10 Do you use adminite computer language 62-19 Do you use C computer language	- ه		- c		- ۷			٦-		- ب		n 4	
	Do you perform t	54			39 18				٠ ٥	0	· ~	14	17	
295 9	æ	45		8	22 9	•	m	•	-	•	8	12	20	
	EPROM, PROM) computer memories													

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D T Tsk		306 3		_	N	A.	O.							~
Y N	Task Title		50 10	51 51	53	54	20	51	52	20	52	73	20	
6 468	G2-22 Do you perform tasks on paper (tape, punch card)	44	0	-	80	•	8	_		_			4 15	ıs
694 9	Do you perform tasks on advanced	15	0	0	0	0	_			_			2	2
	electron Deam, laser, thin film	Ļ	•			9		,				č		
0 4/0	computer Keyboards	9	-	*	``	700	0 4	o -		v -		• •		. م
	tasks on computer character	2 2	٠ ،			9 6	0 6	٠,					* :	÷ -
6 473	tasks on microproc	6 K		, . 1	7 2		าง	٠.		4 -		4 ~		4 14
		3	,		2	•	-							,
6 474	G2-28 Do you perform tasks on video display unit (VDU/	28	0	77	28	9	9	_		~	_	1 12	15	ю
6 475	G2-29 Do you perform tasks on paper tape readers/punches	53	0	8	m	0	٠	0						∞
6 476	tasks on	9 ;	0	.	٦,			0		-	_ ·	-	2	9
2 2	GZ-51 Do you pertorm tasks on toggle or push button switch inputs	\$	-		01	0	5	N	•				-	2
6 478	G2-32 Do you perform tasks on incandescent displays (Nixie	38	0	-	70	м	m	~		_	_	_	8 17	2
6 479	tasks on	45	٠,		92		11	۵.	0	_		1 12		0
9	tasks on	51	0 (٠,	~ -					Η.	ل ا ال
6 482 6 482	62-35 Do you perform tasks on tioppy disc drives 62-36 Do you perform tasks on removable cartridge disc	14	- -	7 2		9 M	D M	٠ ,	- C	N ==	 	7 T	-1	n ec
		, I	,	ı	,)	,	,						
6 483	sks	52	0	_	-	0	~			_	_	ī	9	5
C 484	G2-38 Do you perform tasks on fixed winchester type disc	9	0			6	τJ.	_					2	
6 485	drives 62-39 Do vou trace block or schematic diagrams of	36	-	-	ľ	2	^	_		_	-	71	3	_
	, g	3	•	•		!	,	•	•			•		
6 486	62-40 Do you troubleshoot microprocessor controlled	37	•	0	2	12	~	м	•	-	·	1 16	. 41	_
6 487		56	6	0	^	đ	~	~		_	_	61 1	3,4	· e
		ì	,	,	ı	. ,	ı	ı						.
			i	Ì		1				ĺ			į	
0035	VII 3. G3 Digital Circuits													
6 488	63-1 Do you trace data flow through circuits containing	40	~	7	73	9	-	ď			_	-	8 43	ю.
6 489	counters 63-2 Do you troubleshoot counter circuits to isolate a	35	H	8	м	9	-	м				-	6 42	ζ.
		ļ		1										
06 7 90	G3-3 Do you troubleshoot counters to circuit level components	30	0	-	0	9	H	8	•		_	-	9	•
G 491	63-4 Do you perform tasks on UP counters in logic circuits	35	0	0	_	м	8	8					2 30	
6 492	G3-5 Do you perform tasks on DOWN counters in logic	34	0	0	-	m	cu	2		_			27	~
6 493	63-6 Do you perform tasks on DEC. nE counters in logic	16	•	0		9	_	2					4 34	•
565 9	circuits G3-7 Do vou perform tasks on ring counters in logic	16	0	0	_	0		-	•	_	-	٠``	~	•
	circuits	ì	•	•	•	,	,	•						•

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9		306 3	361 3	361 3	362 30	362 36	362 542	545	545	545	545	545	918	
Y Nbr	Task Title			51 5	51 53	54	20	51	52	20	25	73	20	
6 495	G3-8 Do you perform tasks on modulous counters in logic	ī.	•	•	•	0	0	0	•	•	•	7	∞	
965 9	G3-9 Do you perform tasks on synchronous (parallel) counters	53	0	0	m	9	-	0 7	_	•	0	4	22	
264 9	in logic circuits G3-10 Do you perform tasks on asynchronous (serial) counters	53	•	•	~	м	-	-	0	-	•	4	22	
865 9	in logic circuits (3-11 Do you trace logic diagrams of circuits containing	31	•	0	м	0	_	_	_		•	œ	22	
665 9	registers 63-12 Do you troubleshoot circuits containing registers to	27	0	•	0	0	-	-			-	4	22	
6 500	G3-13 Do you troubleshoot registers to circuit level	25	•	•	-	0	-	-	0	-	•	4	22	
G 501	components G3-4D you perform tasks on shift registers in logic circuite	35	0	0	0	0	8	~			•	9	56	
G 502	G3-15 Do you perform tasks on storage registers	32	0	-	7	м	7	-	_	0	0	∞	23	
6 503	In logic directive (3.1 fb) to the combinational logic	54	•	•	Ŋ	0	8	8	.,	2 0	0	80	30	
6 504	C3-C0115 G3-D7 Do you troubleshoot to isolate a faulty combinational	23	•	7	ю	0	N	~	.,	2	0	80	30	
6 505	G3-logo circuits to Combinational logic circuits to circuit logo control components	19	•	-	N	0	N	0	.,	0	•	9	27	
	Do you perform tasks on	23	۰ د		ע ע	٥ .	00	0.0		00	-	t t	27	
G 507	G3-20 Do you pertora tasks on decoders G3-21 Do you berform tasks on multiplexers	18	•	٠,	J 0			10				12	30	
6 209	Do you perform tasks on	14	0	٦,	ស	0 (٦,	- C			•	.	24	
6 510	G3-23 Do you perform tasks on comparators	18	- 0		N M	- -			- 0			0 (1	13	
	Do you perform tasks on	18	0	-	0	•	_	_				71	18	
	Do you perform tasks on	16	0	-	~ ~	0	,,	, ,		0 c	<i>-</i> -	9 4	5 50	
6 514 6 515	63-27 Do you perform tasks on subtractors G3-28 Do you perform tasks on count detect circuits	12	•	- 0	, ,	o m						0	15	
0036	VII 4. G4 Digital to Analog (D/A) and Analog to Digital (A/		1	į		((()		! ! !						

6 516	G4-1 Do you trace data flow through A/D converters	22	•	-	22 0 1 6 0 2 2 0	0	ď	0	0	N
6 517	64-2 Do vou trace data flow through D/A converters	23	0	-	9	0	8	_	0	N
518	64-3 Do you troubleshoot A/D converter circuits	19	0	-	12	0	_	2	0	N
6 519	64-4 Do you troubleshoot D/A converter circuits	19	0	-	12	0	-	_	0	N
6 520	64-5 Do the converters you perform tasks on use	7	0	~	7	0	0	_	0	0
	flash conversion									,
6 521	64-6 Do the converters you perform tasks on use	м	0	0	3 0 0 2 0 1 1 0	0	_	_	0	_
	successive approximation conversion									,
G 522	G4-7 Do the converters you perform tasks on use	7	0	•	7 0 0 1 0 1 1	0	-	-	0	0
	ramp conversion									•
6 523	G4-8 Do the converters you perform tasks on use	-	0	0	1 0 0 0 0 0 0 0	0	0	0	0	0
	R2R conversion									

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D T Tsk Y Nbr	Task Title	306 3 53 5	361 3	361 3 51 5	362 3 51 5	362 36 53 54	362 542 54 50		542 542 51 52	2 545 50	5 545 52	5 545 73	5 918 50	_
0037	VIII. Transmission/Reception Circuits, Devices, and Systems									! !				
0038	VIII 1. H1 Connections	; ; ;				}				;		1		
Н 524 Н 525 Н 526	HI-1 Do you measure electrical length on transmission lines HI-2 Do you measure physical length on transmission lines HI-3 Do you measure standing wave ratio (SWR) on transmission transmi	12 6 55	35 50 65	35 5 5 5	7 9 1	0 0 M	2 2 6	. พพพ์	201		000	0 16 0 20 0 6		0 77 73
H 527 H 528 H 529	M1-4 Do you construct transmission lines H1-5 Do you match transmission line impedance with loads H1-6 Do you match the characteristic impedance (20)	мфи	65 52 30	17 18 11	10 9	9 6 M	15 6 4	401	5 2		000	0 12 0 12 0 4	100	6) 61 -
H 531 H 531 H 532	or transmission lines H1-7 Do you troubleshoot transmission lines H1-8 Do you perform tasks on open-wire transmission lines H1-9 Do you perform tasks on twisted pair transmission	14 7 15	64 65 31	45 20 64	38 21 42	15 9 15	37 24 44	9 м г д	20 18 4	440	000	0 27 0 22 0 39		ጽ ተ ታ
Н 533 Н 534	lines Hl-10 Do you perform tasks on twin lead transmission lines Hl-11 Do you perform tasks on flexible coaxial trans- mission lines	8 11	25 83	34	00	9 K	13	01 TU	4 0	0 11	00	0 8 0 31		ю rð
H 535 H 536 H 537	H1-12 Do you perform tasks on rigid coaxial transmission lines H1-13 Do you perform tasks on fiber-optic transmission lines H1-14 Do you trace schematic or block diagrams of circuits	e 4 L	76 24 31	20 35	м г н	m m o	ru 4.0	H H0	7 0 7	0 01	0 00		8 90	0 00
Н 538 Н 539 Н 540	containing waveguides H1-15 Do you troubleshoot circuits to isolate a faulty waveguide assembly H1-16 Do you pressurize or purge waveguide assemblies H1-17 Do you measure standing wave ratio for waveguide	1 0	39 67 50	1 2 1	н нн	0 00		0 00			0 00		0 0 0	1 2 1
н 541	assemblies HI-18 Do you remove or install waveguide or associated coupling hardware components	-	29	Ħ	~	0	7	0	-	-	6	0	0	
	lators and Amplifiers		•		,						1 ! !	! ! !	• •	
H 543	HZ-1 Do you trace schematic or block diagrams of circuits containing microwave oscillators or amplifiers HZ-2 Do you troubleshoot circuits to isolate a faulty microwave oscillator or amplifier		N W		2 4	0			0 0		0 0			N N
H 545		0 0	ю о			0 0	7		0 4		0 0			-
	10	•	•	•	1	,		,	1	•				

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H 546	H2-5 Do you perform tasks on three-cavity klystron	0	0	•	0	0	-	0	-	0	0	0	0	0	
H 547	micromave oscillators and amplifiers H2-6 Do vou perform tasks on reflex klystron	-	-	-	-	-	-	-	-	-	•	•	•	-	
	microwave oscillators and amplifiers	•	•	•	1	•	4	•	1	4	•	•	•	4	
H 248	H2-7 Do you perform tasks on traveling wave tube microwave oscillators and amplifiers	•	-	0	7	•	-	0	0	-	0	•	0	-	
Н 549	H2-8 Do you perform tasks on magnetron	0	0	0	_	•	7	0	0	Н	0	0	0	4	
	microwave oscillators and amplifiers														
	H2-9 Do you perform tasks on backward wave oscillator	0	-	0	0	0	-	0	0	0	0	0	0	0	
H 551	H2-10 Do you perform tasks on parametric amplifiers	•	0	0	0	0	-	0	0	~	0	0	0	0	
H 552	H2-11 Do you perform tasks on yttrium iron garnet (YIG)	0	•	0	0	0	~	0	0	0	0	0	0	0	
	tuned microwave oscillators and amplifiers												1	,	
0 0 0 0 0 0	VIII 3. H3 Resonant Cavities		1			1	1	-	:		 		}	:	
H 553	H3-1 Do you trace schematic or block diagrams of	0	0	0	-	0	-	0	0	7	0	•	•	-	
H 554	circuits containing resonant cavities H3-2 Do vou troubleshoot circuits to isolate a	_	•	•	-	•	-	•	•	-	•	•	•	•	
	faulty resonant cavity	•	•	•	4	•	•	>	-	4	>	>	>	-	
	H3-3 Do you tune or adjust resonant cavities electrically	•	0	0	-	0	-	0	0	0	0	0	0	0	
	H3-4 Do you tune or adjust resonant cavities physically	0	0	0	7	0	-	0	0	_	0	0	0	~	
H 557		0	0	0	-	0	-	0	0	~	0	0	•	0	
	H3-0 UO YOU PERTORM TASKS ON PRODE PESONANT CAVITIES	0 (0 (۰,	٠,	0	٠,	0	0	0	0	0	0	~	
		0	•	0	7	0	7 7	00	0 0	0	0 0	00	00	00	
	resonant Cavittes														
0041	VIII 4. H4 Transmitters and Receivers					! ! !	! ! !	:	1		!	i ! !			;

Receivers	
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tters	
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Н 562 Н 563 Н 564 Н 565 Н 566

H 568 H 569

Н 567

H 570 H 571

H4-2 Do you trace block diagrams of AM transmitters H4-3 Do you trace block diagrams of AM transmitter subassemblies or circuit cards H4-4 Do you trace schematic diagrams of AM transmitter subassemblies or circuits cards H4-5 Do you troubleshoot AM transmitters to major units H4-6 Do you troubleshoot AM transmitters to subassemblies or circuit cards H4-7 Do you troubleshoot AM transmitter subassemblies or circuit cards H4-8 Do you align or adjust AM transmitters or circuits H4-8 Do you align or adjust AM transmitters or circuits								000 0 00 0		000 4 00 0 C
H4-9 Do you calculate percentage of modulation for AM transmitters			4 17	•	٠,				7 70	7
H4-10 Do you use "AM" demodulation principles H4-11 Do you trace block diagrams of AM receivers	~ -	0 0		0 0	٦.	0 0		• •	0 (- - (

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Н 572	H4-12 Do you trace block diagrams of AM receiver	~	0	0	1 0	7	٥	•	0	0	0	0	8	
Н 573	Subassemblies of circuit cards H4-13 Do you trace schematic diagrams of AM receiver cubassemblies or rivoit cards	н	0	0	1 0	-	•	•	0	0	0	8	8	
H 574 H 575	000	10		00	0 0		00	00	• •	00	00	0 0	0 0	
Н 576		•	0	•	0	_	•	•	0	•	0	0	0	
		ć		•	•		•		•	•	•	·	·	
H 578	n4-1/ Do you align of adjust An receivers of circuits H4-18 Do you trace block diagrams of single side band (SSB)	•	40							• •	9 0	v 0	۰ ۷	
H 579	transmitters H4-19 Do you trace block diagrams of SSB	0		0	0	•	0	•	-	0	0	0	0	
H CKY	transmitter subassemblies or circuit cards	c	-	•	-	-	-	•	-	-	-	-	•	
		•	,				,	•	•	•	•	•	•	
H 581		0 (0		0 .				٦,	0	0	0	0	
H 582	H4-ZZ Do you troubleshoot SSB transmitters to subassemblies or circuit cards	•	-	-	⊃ -	5	•	-	-	-	•	-	0	
Н 583	H4-23 Do you troubleshoot SSB transmitter subassemblies	0	0	0	7	0		0	-	0	0	0	0	
	or circuit cards to circuit level components H4-24 Do vou align or adduct SCR transmitters or circuits	c	0	•	_	_		-	-	-	-	-	•	
H 585	b percentage of modulation f					_	. –		• ~		• •		• •	
		,		,							,			
H 586	of SSB	0 0	0 0	0 0		0 0		0 0	0 0	0	0 0	0 0	0 0	
	t cards	•	•	•					•	•	•	>	>	
Н 588		•	0	0	0 (0	•	0	0	0	0	0	-	
	cards	•		•					•	•	•	•	•	
H 590	H4-29 Do you troubleshoot 330 receivers to major units H4-30 Do you troubleshoot SSB receivers to sub-	- 0			-	- 0		- 0	- 0	- 0	- 0		- -	
	assemblies or circuit cards													
Н 591	il Do you troubleshoot SSB recei	0	0	0	_	0		0	0	0	•	0	0	
H 592	or circuit cards to circuit level components H4-32 Do vou alian or adiust SSB recaivers or circuits	0	0	0	_	_	_	0	0	0	0	•	0	
	modulation principles	-	_			_	_		-	0	•	ω	-	
H 594	H4-34 Do you trace block diagrams of FM transmitters	∾ ເ	0 0	0	о ·	0 0		0 0	٦,	0 (rd ,	12	۰,	
	you trace block diagrams of ris blies or circuit cards	J	>	>				_	-	>	4	7	4	
965 H	H4-36 Do you trace schematic diagrams of FM transmitter	2	-	0		. 0		0	~	0	-	12	0	
H 597	Subassemblies of circuit cards MG-37 Do vou troublechoof FM transmitters to major units	^	~	-		-		_	-	•	-	5	-	
H 598	FM transmitters	, c	0		· ~		<i>i</i> ~	_	4 14	•	4 ~	12	4 (4	
				•					•	•			•	
H 599	M4-39 Do you troubleshoot FM transmitter subassemblies or circuit cards or circuit laval components	4	-	>	-	- -	-	-	-	-	-	12	0	
	0 Do you align or adjust	2	2	0	_			•	-	0	-	12	ď	
H 601	modulation index for FM transmitters	~ (۰,					_	~ .	0	н (9	0	
H 603	M4-42 Do you measure frequency deviation for FM transmitters H4-43 Do you use "FM" demodulation principles	N N	- 0		2 7				٦,	0 0	۰ -	∞ ∞		
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All Sheppard TTC AFSCs (Inventory Order) PM0001	1				o S	Occupational USAFOMC (ATC	tiona : (AT	11 An C) R	Occupational Analysis Progr USAFOMC (ATC) Randolph AFB	s Pr ph A	Program AFB TX	F¥	Раде
Task Title	306 53	361 50	361 51	362 51	362 53	362 ! 54 !	542 5	542 5 51 5	542 545 52 50	5 545 52	5 545 73	5 918 50	•
H4-44 Do you trace block diagrams of FM receivers H4-45 Do you trace block diagrams of FM receiver	00	00	00		00		2 2	00				ω ω	
subassemblies of circult cards M4-46 Do you trace schematic diagrams of FM receiver subassemblies or circuit cards	8	•	0	-	0	-	-	0	1	•	-	80	0
oleshoot oleshoot	1.2	00	00	1	00		2 7	00		00		800	۰ ۵
or circuit cards H4-49 Do you troubleshoot FM receiver subassemblies or	7	0	•	H	0	7	-	0	-	0	-	 60	,-4
circuit cards to circuit level components H4-50 Do you align or adjust FM receivers or circuits H4-51 Do you plot receiver signal level curves (RSL)		00	• •		00			00		0 0	1 1	0.0	
for FM receivers H4-52 Do you use "PM" modulation principles H4-57 Do you there hlock diagrams of DM transmitters	4-	00		00	00		0 0	0 0	۰.	۰ د	0 0	0 0	
diagrams of PM		•	•	7 7	•		•	• •	- 0				
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ا ب ب		00	00	40	00	п.	• •	• •	H 0	00	00	00	00
assemblies of Circuit Cards M4-58 Do Vou troubleshoot PM transmitter subassemblies or circuit cards to circuit level commonsts	•	•	•	7	•	-	0	0	0	0		•	0
H4-50 Do you calculate pulse recurrence time (PRT)	• •	00	00		00	н п	• •			00	00		0 11
or pulse recurrence frequency (PRF) for PM transmitters H4-61 Do you measure PRT, PRF or pulse width for PM transmitters	•	0	0	-	•	-	•	•	ч	•	•		п
H4-62 Do you use "PM" demodulation principles H4-63 Do you trace block diagrams of PM receivers		000	400	W CI -	000		000	~ o o		000		000	
t cards atic diagrams of		• •	•		• •		• •	• •					
subassemblies or circuit cards H4-66 Do you troubleshoot PM receivers to major units H4-67 Do you troubleshoot PM receivers to subassemblies	н 0	00	00	4 2	00		00	00					
t PM cuit	•		•	-	0	1	•	•	-	•			_
H4-69 Do you align or adjust PM receivers or circuits	0	0 1	•	-	•	-	0	0	-	0			- 1
VIII 5. H5 Antennas		1 1 1	i ! !	! ! !	, ! !	1 1 1 1	1 1 1		i ! !	! !	(- -		! ! ! !

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H 618 Н 619 Н 620

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Н 625

Н 626 Н 627 Н 628

		v	S
4 630 H5-l Do you physically align antennas	H5-2 Do you electrically align antennas	H5-3 Do you troubleshoot loading of antennas	H5-4 Do you troubleshoot coupling of antennas
physically a	electrically	troubleshoot	troubleshoot
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HS-1	H5-2	H5-3	H5-4
630	H 631	H 632	4 633
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H 634	H5-5 Do you plot graph radiation patterns	۰,	13	0.	_		۰ ،	0 0	۰,	0	٥,	0 (- 1 -
	ns-o bo you (roubleshoot antenna components H5-7 Do you measure standing wave ratio (SWR) for antennas	٦ ,	2 2			٦,	v v	• •				t N	- 0
	H5-8 Do you work with Yagi antennas	0	20		-	•	-	0	0			· 🛨	
	H5-9 Do you work with dipole antennas		80		•	-	-	0	0		_		1
	Do you work	0	13	0	-	0	0	0	0	0	0		
	Do you work with		63	_	•	0	0	0	-	0	0		•
	Do you work with	.	14	_	ю ·	0 (0	0	0 (0		~	0
	Do you work with		18	0		0	0	0	0	0			
H 643	H5-14 Do you work with rhombic antennas	•	69	-		-	۰ -	0 0	0 0	0 0			0 0
	Do vou work with	•	74	,	_		٠-	· -	· -	, ₋	٠ -		· -
	Do you work with	•	36			. 0	· ~		. 0	. 0			. 0
749 H	you perform ta	0	19	1	•	0	0	0	-	0	9		0
859 H	perform ta	•	22	7	-	0	0	0	0		0	0	
	antenna arrays												
	H5-20 Do you perform tasks on broadside antenna arrays	0	14	_	•	0	0	0	0	0	0		0
	Do you perform ta	0	9	_	•	0	0	0	0	0	0		0
	Do you perform ta	0	70	-	•	0	•	0	0	0			0
	Do you perform tasks on	0	12		_	~ 1	0	0	-	0	0	•	
Н 653	5	•	6	~		-	0	0	0				
H 654	H5-25 Do you perform tasks on antennas with vertical nolarization	•	98	_	0	-	-	0	-	0	-	0	•
H 655	H5-26 Do you perform tasks on antennas with	0	87	-	0	-	-	0	0	•	_	c	•
	horizontal polarization												
Н 656	H5-27 Do you perform tasks on antennas with	•	43	_	0	7	0	•	-	•			0
	Circular polarization	•	į		•	•	•	•		,	,	,	
/40 H	Mb-20 Do you perform tasks on antennas with unidirectional radiation patterns	-	\	_ ⊣		7	-	0	-	•	•	8	_
H 658	H5-29 Do you perform tasks on antennas with	-	92	1 1		•	0	7	~	0	0	0	•
	bidirectional radiation patterns												
H 659	H5-30 Do you perform tasks on antennas with	-	16	1 1	•	0	-	_	0		_	9	_
	omnidirectional radiation patterns												
0043	IX. Radio Frequency (RF) Measurements or Calculations		!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!			;						!	

Measurements	1 38 1 2 0 1 2 1 1 0 1 1 24 1 1 0 1 1 0 0 0 1 1 17 1 1 0 1 1 0 0 0 1 0 17 1 1 0 1 2 1 0 0 1 1 52 1 1 0 1 2 1 0 0 1
0044 IX I. Il RF Measurements	 II-1 Do you measure RF power II-2 Do you measure RF average power II-3 Do you measure RF average power II-4 Do you measure RF effective power II-5 Do you measure RF output power using wattmeters
9500	I 660 I 661 I 662 I 663 I 664

2 24 2 17 2 18 2 18 6 25

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0045	IX 2. I2 RF Calculations		;												1	
I 665 I 666 I 667	I2-1 Do you calculate RF apparent power I2-2 Do you calculate RF true power I2-3 Do you calculate RF power loss or gain in db	007	6 7 18		0 11 0	000	H H S	000		000		400	o o n			
9500	X. Additional Circuits, Devices, Systems, or Itams		! ! !												:	
0047	X 1. J. Microphones and Speakers	1 1 1 1 1													-	
999 f	J1-1 Do you trace block diagrams of circuits	co.	•	•	m	4	16	2	•	0	7	10	56			
699 ſ	Do you	м	•	0						•	-	5	,			
J 670	Do you troubleshoot to isolate a fa	м	•	• •							-	15	7 %			
	JI-4 DO YOU KOUK ON CATHOD MICROPHONES	ω c	0 0	۰,		53					٦,	10	22			
J 673		7 [•	٠.							۰ 0	∞ ∝	6 0 40			
5/9 F	JI-7 Do you work on crystal microphones	0	0	~							· ~	•	13			
	JI-9 Do you work on velocity ribbon microphones	- 0	0 0	~ o	~ c		m -	00	00	0 0	0 0	4 (۰ و			
J 677	J1-10 Do you trace block diagrams of circuits	2	-	0		20 .					-	10	43.			
J 678	J1-11 Do you trace schematic diagrams of speaker	ĸ	-	•	•	20 ,	21	0	•	•	-	10	45			
	circuits Jl-12 Do you troubleshoot to isolate a faulty speaker	•	-	c						•	•	•	L X			
ر 1 680		м	0	•	4	.	15		•	•	4	9	33 1			
0048	X 2. J2 Photosensitive Devices			1				:						į	:	
J 681	J2-1 Do you trace block diagrams of circuits containing	36	τυ	7	H	0	2 25	5 27	-	•	•0	4	3			
J 682	photosensitive devices J2-2 Do you trace schematic diagrams of photosensitive	,	ц	•	-					•	•		!			
	device circuits	0	n	>	4	5	77	200	7	0	*	16	53			
5897 1	J2-3 Do you troubleshoot to isolate a faulty photo- sensitive device	35	12	-	-	0	1 31	47	-	•	13	16	52			
1684	J2-4 Do you adjust or calibrate photosensitive devices	27	9	7	7	٥	7	~	0	0	М	12	44			
	JZ-6 Do you work on photodiodes JZ-6 Do you work on phototransistors	25 22	0 0	۰ د	٦.	0 0	4-			0 0	۲,	9	4			
7 687	work on phototubes	10	•	• •		• •	. 0			- 0	7 7	و و	38 23			
-	of o bo you work on photo-buks	.	0	0	•	0			•	0	0	9	11		4	

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T sk	Task Title	306 53	6 361 50	361 51	362 3	362 3 53 5	362 542 54 50	12 542 1 51	2 542 52	545	545 52	545	918 50	
689	J2-9 Do you work on photocells (Photoconductive or Photovoltaic)	28	8 25	1	•	0	•	30 5	5		16	14	42	
6500	X 3. J3 Storage Type Display Tubes		!			!		!	1			1 1		
069 (J3-1 Do you trace block diagrams of circuits containing	۳,	9	0	0	0	0	•	0	0	•	0	7	
169 (display tubes J3-2 Do you trace schematic diagrams of display tubes or circuite	.,	9	0	0	•	0	0	0	•	0	0	ĸ	
1 692	Do you troubleshoot to isolate a faulty of	.,		0	0	0	0	0			0	0	~	
694 1 694	J3-4 Do you adjust or calibrate display tubes or circuits J3-5 Do you work on direct view storage tubes (DVST)		00	00	00	-	00				00	00	0	
969 F				00	00	00	00				o o	• •	m n	
050	X 4. J4 Television, Laser, and Infrared Systems		1		1	!		!			! !	1		1
269 (J4-1 Do you trace block diagrams of TV systems or	-	0	•	•	•	-	•	•	0	0	4	24	
869 (subassemblies J4-2 Do you trace schematic diagrams of TV systems or		2	0	0	•	-	0		0	•	4	23	
669 (component circuits J4-3 Do you troubleshoot TV systems to major	••	0	•	•	0	-	•		0	0	4	54	
J 700	subassemblies J4-4 Do you troubleshoot TV systems to circuit		1 0	•	•	•	1	0		0	•	4	23	
102 (level components J4-5 Do you adjust or calibrate TV systems or		0	•	•	•	1	0		0	•	•	22	
J 702	components J4-6 Do you trace block diagrams of laser systems	14	•	•	0	•	•	•		0	•	•	13	
J 703	or subassemblies J4-7 Do you trace schematic diagrams of laser systems	11	0	0	•	•	•	0		0	0	•	12	
J 704	or component circuits J4-8 Do you troubleshoot laser systems to major	14	•	0	0	•	•	•		0	•	0	11	
J 705	subassemblies J4-9 Do you troubleshoot laser systems to circuit	•	6	•	0	c	•				•	•	•	
) 706	ievel components J4-10 Do you adjust or calibrate laser systems	11	0 4	0	0	•	•	0		0	0	•	•	
707 L	or components J4-11 Do you trace block diagrams of infrared systems		3 0	•	0	0	•	7		0	-	9	6	
708	or subassemblies J4-12 Do you trace schematic diagrams of infrared		2 0	•	0	c	0	-		0	8	∞	∞	
) 709	systems or component circuits J4-13 Do you troubleshoot infrared systems to major	•••	3	•	0	•	•	-		0	-	∞	€0	
017 (subassemblies J4-14 Do you troubleshoot infrared systems circuit level components	••	2 0	0	0	•	•	_	-	0	8	∞	∞	

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	918 50	∞	€0	-
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PM0001				
All Sheppard TTC AFSCs (Inventory Order)	Task Title	J4-15 Do you inspect, clean, or service infrared systems or commonents	J4-16 Do you adjust or calibrate infrared systems or components	Tasks not referenced
PRTMOD	D T Tsk Y Nbr	J 711	J 712	0051

Status

Inventory Sequence Not Used Not Used Secondary Sort Print Suppress Primary Sort

Report Option Table for Tasks

Inventory Sequence Not Used Not Used Status Secondary Sort Print Suppress Primary Sort Option

Description of Reported Module Factors

Valid ----- Based on All Tasks Within Range Mean S.D. Max Min Number Hembers Source vector Title Col Factor

Module Statement TITLE

Description of Reported Task Factors

Valid -- Based on All Tasks Within Range Mean S.D. Max Min 98.73 91.34 89.13 95.35 100.00 95.00 98.55 95.70 96.21 89.01 24.98 17.04 11.81 15.96 25.87 13.93 17.42 17.42 17.52 17.53 22.69 6.76 3.63 3.63 3.63 16.51 16.51 8.04 6.51 6.51 4.25 Number Members 237 127 138 172 34 180 180 138 138 138 A11 DAFSC 30653 A11 DAFSC 36150 A11 DAFSC 36151 A11 DAFSC 36251 A11 DAFSC 36254 A11 DAFSC 54250 A11 DAFSC 54251 A11 DAFSC 54251 A11 DAFSC 54251 Task Statement Source vector Title GP0029/PHP GP0031/PHP GP0031/PHP GP0032/PHP GP0035/PHP GP0036/PHP GP0036/PHP GP0036/PHP Factor TITLE F0026 F0027 F0028 F0029 F0031 F0031 F0034 F0035 F0036 F0033 Col 48465467

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Occupational Analysis Program Page USAFOMC (ATC) Randolph AFB TX	Based on All Tasks Within Range Mean S.D. Max Min	98.04 99.24
tional Ana C (ATC) Ra	ed on All S.D.	20.63
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PM0002		
All Sheppard TTC AFSCs Matched to EF/A STS	Title	All DAFSC 54573 All DAFSC 91850
1 Sheppard TTC	Col Factor Source vector	GP0040/PHP GP0044/PMP
	Factor	F0037 F0041
PRTHOD	Col	13

PM0002

Electronic Principles Inventory (EPI) data for Air Force specialties is presented below in Electronic Fundamentals/Applications order. Data for this report was collected from job incumbents during the period March 1987 - September 1988

Percent members responding "YES" is shown for each specialty listed.

For assistance in using this EPI printout phone USAFOMC/OMYA, at AUTOVON 487-6811.

T Tsk Y Nbr Task Title O001 STS I Electronic Fundamentals/Applications dated 20 Feb 1987	306 361 361 362 362 542 542 542 545 545 545 918 53 50 51 51 53 54 50 51 52 50 52 73 50	damentals/ 20 Feb 1987
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1 1	BLES	
1	1. Basic Terms	
1	l. Ba	
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0003	003 la. Matric Notation B	!		!								:		1	
1	1 Al-1 Do you use metric terms (example mili, kilo, mega)	99	46 53		55 (80	7	9	2	3	68 25 70 62 70 42 40	75	75 95		
9000	1b. DC Terms		! !										!	! ! ! !	
∨	2 Al-2 Do you use basic DC electrical/electronic terms	4	89	78	68 78 95 100 92 84 74 95 72 72	6	8	7	. .	7,	72	96	66		
9000	lc. AC Terms		:					!					-		
ĸ ⋖	Al-3 Do you use basic AC electrical/electronic terms	26	69	59	06	8 26	88	6	6 6	6	88 96 56 86 26	86	66		
9000	2. Basic Circuits			!!!!							-		-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

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D T TSK Y Nbr	Task Title	306 361 361 362 362 362 542 542 53 50 51 51 53 54 50 51 52	545 545 545 918 50 52 73 50
0007	2a. Theory of operation B	· · · · · · · · · · · · · · · · · · ·	
4	AI-4 Do you trace schematic or block diagrams of circuits containing conductors, fuses, lamps, switches, or batteries	95 54 42 92 100 95 97 94 87	86 96 98 96
8000	2b. Troubleshoot circuits 2b		
∢	Al-5 Do you troubleshoot circuits containing conductors, fuses, lemps, switches, or batteries	97 53 67 91 97 94 99 97 90	96 96 89 96
6000	3. Basic Circuit Calculations		
0010	3a. DC		
A 6	Al-6 Do you calculate values of DC voltage, current, resistance, or power Al-12 Do you calculate the value of a resistor required for a circuit	48 23 51 34 68 26 61 49 48 43 8 9 29 59 10 27 30 37	30 28 57 79 18 10 53 65
0011	3b. AC		
< <	Al-7 Do you calculate values of AC effective voltage, sverage voltage, or peak-to-peak voltage Al-8 Do you calculate values of frequency, phase relationship, or wave length	49 18 14 24 68 17 65 51 37 47 27 22 28 71 11 44 29 34	27 22 29 67 18 13 24 70
0012	4. Resistors		
0013	4a. Theory of operation B		
6	Al-9 Do you trace schematic or block diagrams of circuits containing resistors	92 33 11 69 97 52 46 57 75	36 23 82 97

T SK YBr	Task Title	306	361 3 50 E	361 3 51 5	362 3 51 5	362 362 53 54	A1	542 542 50 51	52 542	2 545 50	5 545 52	545	918	
A 11	Al-11 Do you calibrate or adjust circuits by using variable resistors	85	11	œ	6	88	21 3	29 3	38 60	0 25	5 12	61	95	
0014	4b. Isolate faulty resistors					1								
A 10	Al-10 Do you troubleshoot circuits to isolate a faulty	89	21	12	95	61	24	36 5	57 70	0 31	1 20	75	96	
A 14	Al-14 Do you ohm check resistors	16	31	18	58	76	27 (43 5	58 76	6 32	23	82	4	
0015	4c. Color code								!					
A 13	Al-13 Do you determine ohmic value of a resistor using the color code	69	14	ĸ	ų, Ki	74	13 3	31 4	76 45	2 19	13	78	93	
0016	5. Relays/Solenoids		i ! !	į					-				!	
0017	5a. Relay theory of operation B			į		į	i :	:	:				:	;
A 15	Al-15 Do you trace schematic or block diagrams of circuits	78	37	4	78	1 56	7. 17	75 7	74 82	2 91	19	96	96	
		38	56	ĸ	69			53 5	52 53	3 43	30	- 63	7	
9 4	AI-lo uo you pertorm tasks on contacts, cores, coils, armatures, or springs	89	77	.		, 89	7 9 7							
0018	5b. Isolate faulty relays			:	-				-				!	
A 16	Al-16 Do you troubleshoot circuits to isolate a faulty	76	36	4	, ,,	91 (62 7	76 77	7 81	26 1	99	92	96	
A 19	relay Al-19 Do you continuity check relays	72	35	4	1 29	88	41 7	76 72	2 81	88	54	92	92	
6100	5c. Solenoid theory of operation		1		;				!			-		
77 4	A2-33 Do you trace schematic or block diagrams of circuits containing solemoids	4	∞	10	4	•	4	48 18	8 73	89	62	8	95	
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Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX

PM0002

PRIMOD All Sheppard TIC AFSCs Matched to EF/A STS

PRTHOD	O All Sheppard TTC AFSCs Matched to EF/A STS PM0002				_	Occul USAF(patic OMC (onal (ATC)	Anal) Rand	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Prog AFB	E X	Page	es Di	•
7 T X X X X X X X X X X X X X X X X X X	Task Title	306 36. 53 50		361 362 51 51	53 553	2 362 54	5.42	542	542 52	545 50	545 52	545	918 50		
0050	5d. Isolate faulty solenoids							1			-	;			:
A 78	A2-34 Do you troubleshoot circuits to isolate a faulty solenoid	£3	9	12	J	e,	3 51	12	74	06	72	98	36		
0021	6. Inductors				! ! !					; ! !	-	}			:
					,										
0022	6a. Theory of operation B				! !		! ! !			:	1 1 1		<u>.</u>	1	:
A 20	Al-20 Do you trace schematic or block diagrams of circuits containing inductors, chokes, or choke coils	09	~	4.	22 71	1 19	19	27	35	ю	•	59	84		
A 25	S	30	8	-	9 32	M	12	.	19	ю	ю	18	59		
0023	6b. Isolate faulty inductors 2b	 	}				:								:
A 21	Al-21 Do you troubleshoot circuits to isolate a faulty inductor, choke, or choke coil	58	8	7 2	20 65	6 0	17	56	33	ю	4	25	80		
A 26	A1-26 Do you ohm check inductors	54	•	4	19 62	Λ. Ι Ο	18	10	31	7	rU.	54	74		
0024	6c. Calculations		!	-					1						;
A 22 A 23	Al-22 Do you calculate values of circuit total inductance Al-23 Do you calculate values of circuit or component	17	0 0	n st	8 35	4.4	13	9 9	19	4 4	МФ	18	39		
A 24	inductive reactance Al-24 Do you calculate values of circuit voltage or current in circuits containing inductors	22	8	8	8 32	4	16	7	19	м	м	16	£		
0025	7. Capacitors						;								

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0026	7a. Theory of operation		1 1 1						}	} 				
A 27	Al-27 Do you trace schematic or block diagrams of	89	24	11	, 99	2 26	58 4	48 62	63	78	29	73	96	
A 32	Al-32 Do you calibrate or adjust circuits using variable capacitors	35	м	4	20 ;	53	7 19	9 12	24	18	9	22	61	
0027	7b. Isolate faulty capacitors			;			-			!			! ! !	
A 28	Al-28 Do you troubleshoot circuits to isolate a faulty	86	19	18	62	91 3	33 48	8 59	62	2,6	29	65	35	
A 33	capacitor Al-33 Do you ohm check capacitors	79	19	14	9 9 9	82 2	23 43	3 50	55	77	27	19	88	
0028	7c. Calculations					-	 			 				
A 29	Al-29 Do you calculate values of circuit total capacitance Al-30 Do you calculate values of circuit or component	30 24	M 4	14	23 (44 1	11 24 7 23	4 21 3 13	24	27	10	25	4 4 8 5	
A 31	capacitive reactance Al-31 Do you calculate values of circuit or component voltage or current in circuits containing capacitors	31	•	80	55 6	47	8 25	5 25	52	30	€0	27	55	
0029	7d. Color code			:	; ; ;					! !			1	
A 34	Al-34 Do you use capacitor color codes in your present job	50	rJ.	м	10 %	21	7 17	80	1 19	15	7	27	53	
0630	8. Transformers				; ! !		!						 	
0031	8a. Theory of operation	i ! !	! !				:						 	
	lic or block diagrams (87	15		88	97 2	77 72	7 87				92	9.5	
¥ 36	Al-39 Do you calibrate or adjust circuits using variable transformers	27	8	•	9	55	3 39	45	30	18	15	37	70	

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0032	8b. Isolate faulty transformers 2b	1		!		!									1
A 36	Al-36 Do you troubleshoot circuits to isolate a faulty transformer	83]	15 1	- 25	96	23	80	93	29	82	42	92	93		
A 41	Al-40 Do you ohm check transformers Al-41 Do you measure transformer output voltage	71 1	13 1	16 20	76 17	11 22	72 82	93	99	75	50	82 86	83 92		
0033	8c. Calculations	1				1						!	}		-
A 37	Al-37 Do you calculate transformer voltage or current	39	7 1	Ŋ	50	7	89	75	35	41	40	61	63		
A 38	step up of step commitments. Al-38 Do you calculate impedance of transformers	22	r.	re.	38	м	37	37	18	16	14	54	39		
0034	9. Three Phase Transformers		1	i i											;
0035	9a. Theory of operation	 				1		į			!			1	į.
4 45 4 44	Al-42 Do you trace schematic or block diagrams of circuits containing three phase transformers Al-44 Do you adjust three phase transformers	31	6 1 2	0. rJ	26	n w	63 39	84	50	45	20	35	39		
0036	9b. Isolate faulty three phase trans- formers			i ! !		į				i					;
¥	Al-43 Do you troubleshoot circuits to isolate a faulty three phase transformer	28	9	•	24	8	61	87	41	39	19	22	28		
0037	10. DC Mators							!	 	! !		;			!
0038	10a. Theory of operation B	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	!					!				1			:
A 45	A2-1 Do you trace schematic or block diagrams of circuits containing DC motors	70 1	13 6	17	•	12	4	®	61	36	31	57	92	•	_

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A 48	A2-4 Do you perform tasks on DC motor component parts	53	7	~	13	ю	1 3	33	5 49	9 28	3 27	31	77		
0039	10b. Isolate faulty DC motors			1		;	-	1							:
4	A2-2 Do you troubleshoot circuits to isolate a faulty DC motor	70	15	4	17	6 1	11 44		7 59	34	37	. 55	06		
0000	10c. Troubleshoot motors						1	;			1	1 1 1		i 	;
V 47	A2-3 Do you troubleshoot DC motor component parts	51	ω	^	11	ю	Б	35 ,	4 47	30	25	39	78		
0041	11. AC Motors	1		1 1		1 1 1	1					1 1 1			:
0042	lla. Theory of operation B					}						! !			i
4 49	A2-5 Do you trace schematic or block diagrams of circuits containing AC motors	83	19	11	6	3 10	0 75	5 19	9 58	16 1	69	73	93		
A 52	A2-8 Do you perform tasks on AC motor component parts	70	^	14	9		1 52	2 14	. 44 t	80	50	41	81		
0043	Ψ.		! ! !	; ; ; ;	 	! ! !		i : :	; ! !	:	!	1 1 1		1	1
A 50	A2-6 Do you troubleshoot circuits to isolate a faulty AC motor	81	17	10 1	10	3 10	62 0	9 22	54	16 (77	17	89		
0044	llc. Troubleshoot motors					! !					1			1	}
A 51	A2-7 Do you troubleshoot AC motor component parts	1,	•	12	9		2 58	3 15	46	85	53	49	81		
0045	12. DC Generators	, f i t			i t	1	į				!	1			!

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0046	12a. Theory of operation				;	!						1			1
	ace schemat generators erform task	111	ъ 4 2 п	2 12	• •	4 11	14	7 7	59		~ ~	4 4	30		
0047	12b. Isolate faulty DC generators	; ! ! !	i !				!				1 1			:	1
A 54	A2-10 Do you troubleshoot to isolate a faulty DC generator	11	м	0 12	•	0	13	61	62	-	7	4	36		
0048	12c. Troubleshoot DC generators	; ; ; ;			1		!		!					!	
A 55	A2-11 Do you troubleshoot DC generator component parts	•	8	9	м	0	10	-	59	8	7	4	30		
00049	13. AC Generators				1		1 1 1								1
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A 60	A2-13 Do you trace schematic or block diagrams of circuits containing AC generators A2-16 Do you perform tasks on component parts of AC generators	49 RV	2 3	eo 4	12	4 0	19	0 4	75	0 0	ν ω	4 4	35 28		
0051	13b. Isolate faulty AC generators				i ! !							1			
A 58	you trouble ator	•	ю	_	12	4	18	^	72	м	^	4	34		
0052	13c. Troubleshoot AC generators					1	1	:	} ! !		!	!			
A 59	A2-15 Do you troubleshoot AC generator component parts		3	4	0	0	13	4	75	~	9	•	27		

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0053	14. Alternators					;	!			 	† 1 1	1		
0054	14a. Theory of operation											1		
A 61 A 64	A2-17 Do you trace schematic or block diagrams of circuits containing alternators A2-20 Do you perform tasks on component parts of alternators	٧ 4		н 0		3 1	6 0	0 0	69	2 4	ю ю	9 9	6 80	
0055 A 62	14b. Isolate faulty alternators A2-18 Do you troubleshoot circuits to isolate a faulty alternator					3 1	•		89	-	m		€	
0056 A 63	14c. Troubleshoot alternators A2-19 Do you troubleshoot alternator component parts	9		0		0 1	9	0	63	-	8	9	60	
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0058	15a. Theory of operation B			!						1				
68	A2-21 Do you trace schematic or block diagrams of circuits containing synchros or servos A2-24 Do you perform tasks on component parts of synchros or servos	22	0 0	0 1	1 0	0 0	ru 4	0 0	12	н 0		18	53 41	
6500	15b. Isolate faulty synchro/servos 2b		! ! !		; ; ;			!		1				
99 V	A2-22 Do you troubleshoot circuits to isolate a faulty	22	8		1 0	-	Ŋ	0	13	. 1	-	14	52	

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0900	15c. Troubleshoot synchro/servos												
A 67	A2-23 Do you troubleshoot synchro or servo component parts	16	~	0 1	•	~	4	0	12	-	1 14	45	
0061	16. Choppers (Synchronous Vibrators)	1	! ! !									!	
0062	16a. Theory of operation B	! ! ! !										1	
A	A2-25 Do you trace schematic or block diagrams of circuits containing choppers	м	•	2	ю	•	8	0	3		0	27	
0063	16b. Isolate faulty choppers		!		!								
A 70	A2-26 Do you troubleshoot circuits to isolate a faulty chopper	ю	•	1 1	м	0	-	•	4		0	52	
A 71 A 72	A2-27 Do you measure chopper coil excitation frequency A2-28 Do you measure chopper coil voltage-current phase relationship	O W	00	0 0	мм	00	0 0		44	0 0	2.4	17	
5900	17. Transducers			; ; ;	:								1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
9900	17a. Theory of operation	1	1										
A 73	A2-29 Do you trace schematic or block diagrams of circuits containing transducers	ĸ	1 17	7	м	-	•	0 2	23	8	4	62	
A 75 A 76	A2-31 Do you calibrate or adjust transducers A2-32 Do you repair, clean or lubricate transducers	4 W	1 26 1 17	6 1 7	00	. 0	ru ru	0 0	14 11	2 2 1 1 2	25	48	
9900	17b. Isolate faulty transducers 2b	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		}		!	-						1
A 74	A2-30 Do you troubleshoot circuits to isolate a faulty transducer	ĸ	1 22	2 1	м	7	ĸ	ō O	24	3	. 31	4	

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₹ ₹	A2-36 Do you trace schematic or block diagrams of circuits containing meter movements A2-38 Do you perform maintenance on meter movement mechanical parts	19 2 7 8 13 2 6 4	15 5 21 21 45 15 9 43 74 9 3 15 17 25 9 9 25 53	
0069 A 81	18b. Isolate faulty meter movements 2b A2-37 Do you troubleshoot circuits to isolate a faulty meter movement	18 3 4 8	12 4 20 21 46 14 10 41 73	
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0071 A 83	19a. Theory of operation B A3-1 Do you trace schematic or block diagrams of circuits containing diodes	86 13 2 54	88 49 22 25 66 17 7 71 95	:
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0074	19d. Color code	i ! ! !								į			
₹	A3-6 Do you use diode color codes	19	ю	æ	12	•	۲	8 15	м	М	20	54	
0075	20. Bipolar Junction Transistors		! ! !				! ! ! !	! ! !	1 1 1 6			i ! ! !	1
9200	20a. Theory of operation B	; ; ; ; ;									:		
89	A3-7 Do you trace schematic or block diagrams of circuits containing transistors	06	7 2	4	46	[74	15	5 45	∞	4	55	93	
0077	20b. Isolata faulty transistors 2b				1							; ; ; ;	
96 V	A3-8 Do you troubleshoot circuits to isolate a faulty transistor	88	6 1	37	88	22 1	12 ,	4 41	4	4	64	25	
A 91	A3-9 Do you check transistors using an ohmmeter A3-10 Do you check transistors using transistor testers	98	2 1	33	85 44	16 1	34.	4 40 0 14	4 4	40 W	64.6	89 67	
0078	20c. Specifications				; ;								
A 93	A3-11 Do you use transistor characteristic curves A3-12 Do you use transistor substitution information	20 1	. 0	4 0	15	w 4	т ч	1 10	нн	0 0	18	37 81	
6200	21. Integrated Circuits				!	; ; !							
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A 95	A3-13 Do you trace schematic or block diagrams of circuits containing integrated circuits (IC)	84 1	0	15	50	20 1	13 &	8 19	īŪ	, r v	25	92	

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0081	21b. Isolate faulty integrated circuits 2b			!				:	i ! !			 		!	
96 ¥	A3-14 Do you troubleshoot circuits to isolate a faulty IC	79 1		10	35	13	12	5 1	17	4	43	90			
0082	21c. Specifications B					1		1	1		-	! ! ! !		!	
76 A	A3-15 Do you use IC substitution information	45 (9	18	м	6	м	7	1 2	53	80			
2800	22. Solid State Special Purpose Devices (SCR, Zener Diode, Tunnel Diode, LED, LCD, UJT, JFET, MOSFET)	1						† † ;			1		i 1 1	1	
0084	22a. Theory of operation B								!		-			:	
A 98	A3-16 Do you trace schematic or block diagrams of circuits containing solid-state special burbose devices	53	1	•	29	14	15 1	10 1	18 11	9	35	88			
A 100	™ 3	11			15	8 -	мн	٠.	2 -	0.	12	45			
	Do you perform tasks on field effect transistors			4 00 .	15	. ~ .	, ,								
A 105 A 104	AS-21 Do you perform tasks on unijunction transistors (UJI) AS-22 Do you perform tasks on zener diodes		90	- 6	47	7 51	11 4	, ,			35	88 88			
A 105 A 106	A3-23 Do you perform tasks on liquid crystal displays (LCD) A3-24 Do vou perform tasks on pin diodes	35	0 0	• •	3 3	ru w	. 4	~ 0	10 v	2 2	24	76 77			
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A 109	A3-20 Do you perform tasks on fantall transistors A3-27 Do you perform tasks on silicon controlled rectifiers	39		5 0	15	7 7	70		33.0	7 7	35	21 85			
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A 112	A3-50 Do you perform tasks on silicon controlled	10	1 0	1	•	~	3	•	9	2 1	14	19			
A 113	Astrones (202) 3.15 Do you perform tasks on silicon unilateral	9	1 0	•	m	0	-		м	2 0	9	63			
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A 117 A 118	trigger glode) A3-35 Do you perform tasks on varistors A3-36 Do you perform tasks on metal oxide varistors (MOV) - 45 -	4 &	00	15	41	16	V 12	00	N 3	2 1	20	58 29			

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0085	22b. Isolate faulty special purpose 2b devices		; 1 1 1		;				!	; ; ;					-
66 V	A3-17 Do you troubleshoot circuits to isolate a faulty solid-state special purpose device		51	0	œ	56	11	14 1	11 1	8 12		6 37	83		
9800	23. Electron Tubes		; ;			; ;				i !					1
0087	23a. Theory of operation	1 8 9 1 1 8					;	! ! !	1 1 1						:
A 120	A4-1 Do you trace block diagrams of circuits containing electron tubes		11	1 0	•	0	-	~	50		1 2	•	36		
A 121	A4-2 Do you trace schematic diagrams of electron tube circuits		6	0	^	•	-	7	50		1 3	9	35		
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A 128	entode tube					•	-						20		
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A 154	A4-15 Do you perform tasks on nixie tubes					•	•						n		
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A 122	A4-3 Do you troubleshoot circuits to isolate a faulty electron tube		10	•	æ	•	7	1 2	55	7	M	•	34		
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A 123 A 124	A4-4 Do you use electron tube characteristic curves A4-5 Do you use electron tube substitution manuals or charts		ню	0 0	W 4	00			o H	2 1		0.4	12 23		
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0600	24. Cathode Ray Tubes (CRT)								1					:
1600	24a. Theory of operation B				į		;					i		;
A 135	A4-16 Do you trace block diagrams of circuits containing	45	-	-	2]	12	_	,		-	8	80	89	
A 136 A 138	trace adjus	42 41	00	00	23	12	4 4	7 7		0 0	0	60 60	67 67	
A 139 A 140	A4-20 Do you perform tasks on electrostatic CRT A4-21 Do you perform tasks on electromagnetic CRT	21 22	0 7	7 7	2 1	12		0 4	0 4	2 1	00	∞ ∞	33 45	
0092	24b. Isolate faulty CRTs			!	:		1 1	;						!
A 137	A4-18 Do you troubleshoot to isolate a faulty CRT	4	0	•	2	12	-	4	4	•	7	€0	19	
0093	25. Solder/Desolder	1						į		! ! !				
9600	25a. Terminal connections		4 1 1 1											:
A 141 A 142	A5-1 Do you solder or desolder hardwire connections A5-2 Do you solder or desolder component connections such as resistors, capacitors, diodes, transformers, etc	95	33	51 6	888	97 8	86 67 35 44	7 70	8 81 3 77	59	41	96 98	36	
9600	25b. P C Boards			!							!		1	
A 143	A5-3 Do you solder or desolder printed circuit board	85	17	,	44 7	74 19	9 28	8 30	51	=======================================	•	גי	89	
A 144	AS-4 Do you solder or desolder multi-layer circuit hoard connections	35	•	7	17 2	56	9 17	8 /	3 26	_	ιū	53	57	
A 145	A5-5 Do you perform high reliability soldering	78	28	32 6	45 7	71 32	25	30	6.2	20	-	5	4	

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9600	25c. Multipin connectors			į												
A 149	A5-9 Do you repair or fabricate connectors or cables on multiconductor cables	ន	41	87	53 !	20 8	5 58	9 65	67 3	32 1	15	7 5	59 7	75		
A 152	A5-12 Do you repair or fabricate connectors or cables on ribbon cables	4	4	•	∞	ю	13 1	12	r.	6	3	.	59 6	59		
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A 150	A5-10 Do you repair or fabricate connectors or cables on	46	91	20	19	32]	19 3	31 1	16 1	16	7	8	59 7	77		
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8600	26. Assemble Solderless Connectors		-						;			;		1		•
6600	26a, Crimp								;	{						ě
A 146 A 147 A 148	A5-6 Do you use crimping tool to repair or make connections A5-7 Do you use wire wrap tool to make connections A5-8 Do you use punch-on tool to make connections	88 3.59 5.79	61 23	833	52 91 70	222	78 8 89 4 95 3	87 43 33 2 22	22 3 38	85 7 31 3 23 2	77 60 34 24 24 16		94 95 45 43 57 36	95 36 36		
0100	26b, Coaxial		-				1		-							
A 150	A5-10 Do you repair or fabricate connectors or cables on	94	91	70 1	19 3	32 1	19 3	31 1	16 1	16	7	80	59 77	~		
A 151	Conser causes A5-11 Do you repair or fabricate connectors or cables on triaxial cables	18	23	14	€0	9	7 1	12	9 1	10	re! 	3 1	16 31	-		
0101	26c. Multipin							!	! !	!		:				
A 149	A5-9 Do you repair or fabricate connectors or cables on	55	47	87	53	50 8	84 4	9 65	67 3	32 15		7 5	59 75			
A 152	A5-12 Do you repair or fabricate connectors or cables on ribbon cables	4	4	o-	€0	ъ	13 1	12	ъ	6	4	4 29	6			

PRTHOD	All Sheppard TTC AFSCs Matched to EF/A STS PM0002				.	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	ation MC ()	1a1 / (TC)	tnal) Ranc	sis lolph	Prog AFB	E X	Page		19
D T Tsk Y Nbr	Task Title	306 361 53 50	1 361	1 362	2 362	2 362 54	542	542 51	542 52	545	545	545	918 50	-	
0102	27. Use Test Equipment Usage		1	i ! !	į						1				}
0103	27a. Multimeter, analog		1												1
B 153 B 154 B 155	use the multimeter t use the multimeter t use the multimeter t	99 7 98 7	76 77 6 7 9 9 1	78 91 61 85 17 11	1 97 5 91 1 35	83 1 81 5 10	84 97 33	77 99 40	96 95 22	65 94 20	53 81 13	96 96 31	96 66 67		
B 156 B 157 B 158	voltmeters using external shunts B1-4 Do you use the multimeter to measure DC current values B1-5 Do you use the multimeter to measure AC current values B1-6 Do you use the multimeter to extend the range of	85 5 78 5 16	53. 5.18 5.4	56 67 40 60 7 8	7 76 0 71 8 26	69 69	70 87 32	64 91 33	74 77 16	54 87 21	41 68 13	80 78 25	93 89 35		
B 159 B 160		78 6	65 5 3 3	89 74 33 64	4 85	62 41 41	81 72	83	76 83	76 86	58 53	80 80 80 80	85 96		
0104	27b. Oscilloscope													i :	:
B 161 B 162		1 69 1.	17 12 8 12	12 20 12 15	0 82	d w	• •	0 0	ر 5	0 0	N W	27	92		
B 163 B 164 B 165 B 166	fall, pulse width, etc) B2-3 Do you use the oscilloscope to measure AC voltage B2-4 Do you use the oscilloscope to measure DC voltage B2-5 Do you use the oscilloscope to measure ripple voltages B2-6 Do you use the oscilloscope to measure phase jitters B2-7 Do you use the oscilloscope to observe signal/data	84 89 1: 73 23 80 1:	222	4 18 5 20 2 7 2 7 8 15	8 82 0 82 7 53 7 15 5 59	V 80 N N 9	V V R W 4	ниння	0 0 0 N N	0000	44000	29 31 22 24	93 68 72		
B 168 B 169 B 170 B 171	B2-8 Do you use the oscilloscope to observe lissajous patterns B2-9 Do you use the oscilloscope to observe phase relationships B2-10 Do you use attenuator probes with oscilloscopes B2-11 Do you use delay time multipliers with oscilloscopes	18 56 44 27	0 0 00	2 4 2 2 3 3 3 3 3	2 2 3 2 2 4 3 15	0 W 4H	ю ц юю	0 4 40	7 e œ	0 0 0 0	0 0 HH	14 24 16 10	18 77 81 35		
0105 B 172	27c. Signal Generator 27c. Signal Generator B3-1 Do you use signal generators (SG) to perform	51 16	-	6 29	96	п	4	*	м		~	20	71		:

PRTHOD) All Shappard TTC AFSCs Matched to EF/A STS	PM0002					Occupational USAFOMC (ATC)	oatic OMC (na1 ATC)	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	ysis dolpi	Prog	me re XT 8	Радв	20
D T Tsk Y Nbr	Task Title		306 36] 53 50	361 361 50 51	1 362	2 362 53	2 362 54	542	542	542 52	545 50	545 52	545 73	918 50	
B 173	B3-2 Do you use SG to perform alignments, adjustments, or calibrations		48	10	4	26 88	6	4	H	8	0	8	20	69	
B 174	B3-3 Do you use SG to troubleshoot circuits		45	7	7 3	30 94	t 16	4	10	м	0	-	20	59	
0106	27d. Frequency counter				-				!						:
18	Do you use frequency c		12	11 1	15 5	53 97	11 /	«	0	24	М	м	24	92	
0107	27e. Spectrum Analyzer	1												1	!
∞	B4-2 Do you use spectrum anal		13 5	52	8	м	w 0	4	0	M	2	7	∞	14	-
0108	27f. Field strength tester	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			;										!
B 187	84-3 Do you use field streng		м	9	8	 H	м 6	•	23	4	8	8	14	n	
l 		! ! !			:				-				1		!
	84-4 Do you use digital mult		95 3	38 5	51 81	1 94	59	58	69	75	44	26	92	96	
0110	27h. Digital logic probe					;				!					•
18	Do you use digital logi		54	8	-	3 24	8	ιū	•	4	м	~	27	77	
0111	27i. Capacitor tester	1) t 	!					:			-			1
B 190	itance t		•	3 *	м	5 18	^	10	0	9	17	M	54	55	
_	27j. Capacitor substitution box	J 6 8 1 1 1 1 1	! ! !	!	1			}	-						
B 191	B4-7 Do you use capacitor substitution boxes		м	0	-	<u>د</u>	8	4	0	m	4	-	18	37	

PRTHOD	All Sheppard TTC AFSCs Matched to EF/A STS	PM0002				o S	cupa AFOM	tione c (A)	L An C) R	alysi andol	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	ogra FB T		Page	21
D T Tsk Y Nbr	Task Title		306 361 53 50	51	362 51	362 53	362 54	542 5	542 5 51 5	542 54! 52 50	545 545 50 52	5 545	5 918		
0113	27k. DC restorer	1				-	!					!		!	i i
B 192	84-8 Do you use DC restorers (CRT rejuvinators)		2 2		0	9	2	ю	0	м	N	1 10	10		
0114	271. Logic current tracer	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		!		!			!						1
B 193	B4-9 Do you use logic current tracers		80		-	9	7	•	-	ю	8	1 16	54.		
0115	27m. Tube tester	 					!	!				1		1	}
B 194	no A		4	-	1	ю	~	4	8	4	8	α.	8 19		
(116	27n. Logic pulser	! ! !	; ; ; ;		1	1	!					!			-
B 195	B4-11 Do you use logic pulsers		11 2	H	•	15	7	٠	0	м	0	2 16	29 9		
0117	יטי	1 1 1 1 1 1 1	! ! !	! !	1	! ! !	!	! ! !		1		1 1			}
B 196	u use logic		11 2	-	7	9	0	4	•	m	N	1 18	37		
0118	27p. Signature analyzer,	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				:	1			!		1			:
B 197			м 2	-	•	M	0	m	0	м	N	-	8 20		
0119	27q. Reflectometer 2b	; ; ; ;		1		1		!		}	!				;
_	B4-14 Do you use reflectometers		2 28	41	-	м	7	4	2	м	N	1 14	11		
0120	28. Transistor Amplifier Circuits (Common Emitter, Common Collector, Common Base)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	 	1				! !			1		1		:

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361 362 362 362 542 542 545 545 545 918 51 51 53 54 50 51 52 50 52 73 50 83 50 20 84 20 46 67 38 45 49 18 7 16 2 12 12 18 22 00000 29 18 54 18 2 2 13 75 0 306 361 53 50 4 100 20 10 12 12 13 15 6 6 15 6 15 18 13 12 4 10 Cl-10 Do you work on cascade-connected transistor amplifiers C2-6 Do you perform tasks on diode stabilization amplifiers C1-9 Do you work on compound-connected (Darlington Pair) Cl-19 Do you work on DC transistor amplifiers (switching C2-3 Do you perform tasks on emitter (swamping) resistor Cl-1 Do you trace block diagrams of circuits containing C2-7 Do you perform tasks on double diode stabilization Cl-18 Do you work on complementary symmetry transistor C2-5 Do you perform tasks on thermistor stabilization paraphase transistor amplifiers push-pull transistor amplifiers Cl-8 Do you calculate values of transistor amplifier C2-4 Do you perform tasks on self-bias stabilization on wideband transistor amplifiers Cl-2 Do you trace schematic diagrams of transistor CI-6 Do you adjust or align transision amplifiers on buffer transistor amplifiers C2-1 Do you trace schematic diagrams of amplifier audio transistor amplifiers on IF transistor amplifiers RF transistor amplifiers voltage, current or power gain 28a(2). Stabilization circuits 28a(1). Amplifier circuits stabilization amplifiers 28a. Theory of operation stabilization circuits transistor amplifiers transistor amplifiers 5 5 Do you work on 5 amplifier circuits Do you work C1-12 Do you work Do you work #Ork Do you work Do you work applications) Task Title Do you amplifiers amplifiers amplifiers amplifiers C1-14 **C1-15** C1-11 C1-13 **C1-16** C1-17 T Tsk 212 212 213 214 214 215 215 Š 206 208 209 210 C 218 C 221 C 223 C 224 C 199 C 200 C 204 C 217 C 220 C 222 0121 0122 0123 ۵

PRTHOD	All Sheppard TTC AFSCs Matched to EF/A STS PM0002				ÓΣ	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	ition IC (A	al Ar TC) F	nalys Rando	sis P olph	rogr AFB	e X	e.	Page	23
D T Tsk Y Nbr	Task Title	306 361 53 50	1 361	. 362	362	362 54	542 50	542 5	542 5	545 5	545 5	545 9	918 50		
0124	28a(3). Coupling circuits B												1	; ; ;	;
C 225	C3-1 Do you trace block diagrams of circuits	35	6		2 29	ī	M	-	ю	~	0	10	69		
C 226 C 229 C 230	containing coupling circuits C3-2 Do you trace schematic diagrams of coupling circuits C3-5 Do you perform tasks on direct coupling circuits C3-6 Do you perform tasks on capacitive-resistive coupling	34 34 27	120		2 29 2 21 2 24	4 W W	w 01 01	H F 0	ммп	H 0 0	000	12 8 8	72 67 61		
C 231	circuits C3-7 Do you perform tasks on capacitive-inductive coupling	22	1 0	2	21	M	8	0	8	0	0	80	57		
C 232	circuits C3-8 Do you perform tasks on transformer coupling circuite	27	1 0	2	21	M	8	8	8	-	0	10	59		
C 233	C3-9 Do you perform tasks on optical coupling circuits	19	4		9	7	2	0	-	0	0	10	42		
0125	28b. Isolate faulty amplifier circuits 2b	! ! !								1		; !			:
C 201	Cl-3 Do you troubleshoot to isolate a faulty	41		0 11	. 62	9	м	•	4	0	~	16	81		
C 205	cl-7 Do you measure transistor amplifier voltage, current,	25		6 0	44	2	7	•	8	0	-	10	59		
C 227	or power yearn C3-3 Do you troubleshoot circuits to isolate a faulty coupling circuit	83	1 1	7	5 5	м	м	-	м	-	•	12	89		
0126	28c. Troubleshoot circuits 2b	! !	;		:						:	!	!		;
C 202	Cl-4 Do you troubleshoot transistor amplifiers to circuit	35			8 44	8	٧.	•	м	0	-	18	80		
C 203 C 219		14 15	00	9 0	6 41	0 0	0 0	00	ч к	00	0	10	45		
C 228	to circuit ievel components C3-4 Do you troubleshoot coupling circuits to circuit level components	53		.,	2 21	0	м	-	н	•	0	10	20		
0127	29. Electron Tube Amplifiers	1 1 1 1					!				į		:	; ; ;	:

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D T Sk	Task Title	306 53	361 50	361 3 51 5	362 36; 51 53	C)	362 542 54 50	2 542 51	542	545	545 52	545	918 50		
0128	29a. Theory of operation		1	:	-								;	1	1
C 234	C4-1 Do you trace block diagrams of circuits containing	~	•	1	4		 H	-	-	•	•	•	18		
C 235	C4-20 you trace schematic diagrams of electron tube	. ~	0	0	4	0	-	~	-	0	0	N	16		
C 239 C 241	C4-6 Do you adjust or align electron tube amplifiers C4-8 Do you calculate values of electron tube amplifier	7 7	00	00	J M	00				00	• •	~ ~	11		
C 242	voltage, current, or power gain C4-9 Do you perform tasks on paraphase electron tube	-	•	r1	0	•			-	•	•	~	•		
C 243	C4-10 boy perform tasks on push-pull electron tube	0	0	0	-	0	-		-	•	0	N	11		
C 244	C4-11 Do you perform tasks on audio electron tube amplifiers C4-12 Do you perform tasks on voltage regulator electron	0 8	00	00		00		7	0 0	00	0 7	W 4	8 15		
C 246	tions ampiritiers C4-13 Do you perform tasks on common grid electron tube	•	0	0	1	0	, H	0	-	•	0	8	16		
C 247	ampilities s C4-14 Do you perform tasks on common cathode electron tube ampilifiers	1	0	0	-	0	-		-	0	0	N	16		
C 248	C4-15 Do you perform tasks on cathode follower electron tube amplifiers	-	0	•	-	•	-	0	-	0	0	8	14		
0129	29b. Isolate faulty tube amplifiers	1					Ì		-						
C 236	C4-3 Do you troubleshoot to isolate a faulty electron	8	•	0	4	•	-	•	-	•	•	~	16		
C 240	C4-7 Do you measure electron tube amplifier voltage, current, or power gain	0	0	0	4	0	7	0	7	0	0	8	14		
0130	29c. Troubleshoot circuits							;					 		
C 237	C4-4 Do you troubleshoot electron tube amplifiers to	-	•	0	m		-		-	•	0	~	17		
C 238	carcult level components C4-5 Do you troubleshoot electron tube amplifier dis- tortion	-	0	0	м		1 0	•	-	•	0	~	10		
0131	30. Operational Amplifiers			! ! !	!							į			

PRIMOD	All Sheppard TTC AFSCs Matched to EF/A STS PM0002	N.			03)ccup JSAF0	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	al A	naly: Rando	sis F olph	Program AFB TX	E X	Page		25
D T Tsk Y Nbr	Task Title	306 3 53 5	361 36 50 51	361 362 51 51	2 362	2 362 54	542 50	542	542	50 5	545 5	545 9	918 50		
0132	30a. Theory of operation B			1		 	-		; ; ; ;					!	
C 249	C5-1 Do you trace block or schematic diagrams of circuits	30	•	-	5 29	6	4	0	4	•	7	12	85		
	op amp gain	80	0	0	ä	21		0	0	0	-		53		
C 252	C5-4 Do you adjust op amp bias, offsets, or drift	16	0 0		4 12	~ ~	И н	0 0	α (0 0	- 9	9 5	59		
	general purpose (inverting or non-inverting)	9 ;	> 6				n (-	u (- (2 :	: ;		
	lonal	T P	5	5	-	-	N	>	7	>	0	10	23		
C 255	C5-7 Do you use or apply operational amplifiers for	ω	0			3	7	0	м	0	0	ω	19		
C 256	Summing C5-8 Do you use or apply operational amplifiers for	80	0	7	7	9	8	0	01	0	0	9	68		
C 257	unity gain amplifier (buffer) C5-9 Do you use or apply operational amplifiers as	80	0	-	η.	9	8	0	~	0	0	æ	4 8		
C 258	active filters C5-10 Do you use or apply operational amplifiers as	19	•	-	2 21	2	23	•	м	0	•	10	61		
C 259	oscillators C5-11 Do you use or apply operational amplifiers as	•	•	•	_	0	7	0	01	0	•	80	58		
C 260	integrators C5-12 Do you use or apply operational amplifiers for	σ	•	•	_	0	7	0	8	0	•	9	56		
C 261	differentiators C5-13 Do you use or apply operational amplifiers for	53	0	0	2 18	9	4	H	ĸ	-	0	16	68		
C 262		54	~	2	LC1	6	м	•	8	M	~	16	99		
	nalog (D/A) conver				-				- ا						
	SJATITTOUR	j ;						-	٠ .	٠ ،	- •	0 (ر د		
C 264	<pre>C5-16 Uo you use or apply operational amplifiers as modulators/demodulators</pre>	16	5	•	2 12	-	8	•	-	0	0	c	38		
0133	30b. Isolate faulty Op Amps	i i i i	1	:			; ! !					!			•
C 250	C5-2 Do you troubleshoot to isolate a faulty op amp circuit	56	•	0	4 26	8	м	0	æ	0	-	10	83		
0134	31. Magnetic Amplifiers	1 1 1 1 1			!										•

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	Task Title	ми	306 361 53 50	1 361	362	362 53	362 5 54 5	542 50 50	542 542 51 52	2 545 50	545	545 73	918 50	
0135	3la. Theory of operation	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	;	! ! !				1			!			1
C 265	C6-1 Do you trace block diagrams of circuits containing		-	0	61	0	-	м	-	8	0	4	8	
C 266	magnetic amplifiers (6-2 Do you trace schematic diagrams of magnetic		_	0	61	0	7	ю	7	7 0	•	4	0	
C 269	ches Do you adjust magnetic amplifiers or components		-		1	0	•	2	-	0 9	0	2	0	
0136	31b. Isolate faulty magnetic amplifiers) 		1				i !			1 1		1	;
C 267	C6-3 Do you troubleshoot to isolate a faulty magnetic amplifier		- -	0	Ħ	•	•	м	-	7 0	0	4	8	
0137	31c. Troubleshoot circuits			;	;		f F B	1						1
C 268	C6-4 Do you troubleshoot magnetic amplifiers to circuit level components		-	•	Ħ	0	•	0	-	4	0	0	8	
0138	32. Saturable Reactors	 		1			!					1		:
0139	32a. Theory of operation												! ! !	1
C 270	C6-6 Do you trace block diagrams of circuits containing saturable reactors			-	-	•	0	-	-	0	0	21	0	
C 271	C6-7 Do you trace schematic diagrams of saturable reactor circuits			1	7	0	0	7	-	0	٥	8	8	
C 274	#)ts			•	0	0	H		0	-	0	01	
0140	32b. Isolate faulty saturable reactors						}							:
C 272	C6-8 Do you troubleshoot to isolate a faulty saturable reactor				-	•	•	н	•	8	•	8	4	

PRTHOD	All Sheppard TTC AFSCs Matched to EF/A STS PM0002	2				Occu	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	onal (ATC)	Anal Ran	ysis dolpł	Prog	ram TX	e.	Page	27
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0141	32c. Troubleshoot circuits									<u> </u>		1	:	1	1
C 273	C6-9 Do you troubleshoot saturable reactors to circuit level components	0	•	-	•	0	.	1 0	60	0	0	6	∾.		
0142	33. Power Supply Circuits (Half-wave, Full-wave, Full-wave bridge)	, ! !	; ;									! !	1	!	!
0143	33a. Theory of operation	; 1 1 1 1	! ! !		; !							.			;
0144	33a(1). Rectifiers (Half-wave, Full-wave, B Full-wave bridge)	1										1			
D 275	DI-1 Do you trace block diagrams of circuits containing	89	∞	-	88	91 4	45 48	3 39	32	29	21	75	95		
D 276	Domer supprises Library of power supply	89	∞	-	32 8	88 3	37 48	3 42	32	28	21	75	95		
D 279 D 280	DI-5 Do you align or adjust power supplies DI-6 Do you perform tasks on half-wave rectifier	82 61	0 0		26 8	88 1 59	19 33 5 21	30	23	10	10	45 39	85		
D 281	power supplies DI-7 Do you perform tasks on full-wave rectifier	99	0	0	, 71	52	7 23	8	34	^	M	47	87		
D 282	power suppress to the second of the proper suppress power for the power suppress to the power suppress to the second seco	99	8	-	€0	53 1	10 25	•	37	10	M	57	16		
D 283	DI-9 Do you perform tasks on three-phase rectifier power supplies	17	0	•	13	•	4 17	7	56	€0	~	∞	20		
0145	33a(2). Filters (Capacitive, Inductive, B L-Section, Pi-Section)	i 1 1 4 1		i !			į	!	i i						<u> </u>
D 288	D2-1 Do you trace block diagrams of circuits containing	58	0	-	· 9	47	8 14	.+	••	-	7	27	77		
D 289	power supply inters 2-2 Do you trace schematic diagrams of power supply 4:114=re	57	•	•	5	47	6 13		∞	8	-	25	77		
D 292 D 293 D 294	D2-5 Do you perform tasks on capacitive power supply filters D2-6 Do you perform tasks on inductive power supply filters D2-7 Do you perform tasks on L-type power supply filters - 57 -	50 38 23	000		8 W G	47 35 12	6 10 4 6 1 3	0.0	0. 00 W	8 H O	.00	22 18 14	75		

PRTHOD	All Sheppard TTC AFSCs Matched to EF/A STS PM0002				ŏΞ	ccupi	ation IC (A	al A TC)	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	sis F olph	rogr AFB	e X	Page	28	60
D T Tsk Y Nbr	Task Title	306 361 53 50	. 361 51	362 51	362 53	362 54	542 50	542 51	542 5	545 5	545 5 52 7	545 9 73 5	918 50		
D 295 D 296 D 297 D 298	D2-8 Do you perform tasks on Pi-type power supply filters D2-9 Do you perform tasks on T-type power supply filters D2-10 Do you perform tasks on resistive capacitive (RC) power supply filters D2-11 Do you perform tasks on inductive capacitive (LC) power supply filters	19 0 11 0 46 0 37 0	0 4 0	00 W	9 6 41 35	ппф ю	0 0 co	000 0	m 0.0 0	0 7 0	000 0	16 10 18 16	26 20 69 61		
0146	33b. Isolate faulty power supplies 2b		1				1	1	-				1		
D 277 D 290	DI-3 Do you troubleshoot circuits to isolate a faulty power supply D2-3 Do you troubleshoot circuits to isolate a faulty power supply filter	88 7 57 0		37	85	68	49	1,	35	5 2	25	78	92 73		
0147	33c. Troubleshoot circuits					į		!							
D 278	D1-4 Do you troubleshoot power supplies to circuit level components D2-4 Do you troubleshoot power supply filters to circuit level components	81 4	H 0	3 3	35	22	37	30	27	23	17	61	92 73		
0148	34. Voltage Regulators (Shunt, Series EVR, IC EVR)	1					! !	İ							
0149	34a. Theory of operation B						;			}		; 1 1			

D 300 D3-2 Do you trace schematic diagrams of power supply voltage regulators D 302 D3-2 Do you trace schematic diagrams of power supply voltage regulator circuits D 303 D3-5 Do you perform tasks on variable resistor power D 304 D3-6 D0 you perform tasks on zener diode power supply voltage regulators D 305 D3-7 D0 you perform tasks on transistor series power supply voltage regulators D 305 D3-7 D0 you perform tasks on IC power supply voltage regulators D 306 D3-8 D0 you perform tasks on pulse width modulator regulators D 307 D3-9 D2 you perform tasks on pulse width modulator D 307 D3-9 D2 D2 D2 D2 D2 D2 D2 D2 D2 D2 D2 D2 D2	D 299	D3-1 Do you trace block diagrams of circuits containing	89	~	-	«	2	,	0	3			ë	a	4
Voltage regulator circuits 3-5 Do you perform tasks on variable resistor power supply voltage regulators B3-6 Do you perform tasks on zener diode power supply voltage regulators B3-7 Do you perform tasks on transistor series power supply voltage regulators B3-8 Do you perform tasks on IC power supply voltage regulators B3-9 Do you perform tasks on pulse width modulator power supply voltage regulators	D 300	power supply voltage regulators D3-2 Do you trace schematic diagrams of power supply	29		. 0	<u>п</u>	. 29	. 4	, 6	. G	. 0		i 0i n 10	. w	o
D3-6 Do you perform tasks on zener diode power supply voltage regulators D3-7 Do you perform tasks on transistor series power supply voltage regulators D3-8 Do you perform tasks on IC power supply voltage regulators D3-9 Do you perform tasks on pulse width modulator power supply voltage regulators	D 303	voltage regulator circuits D3-5 Do you perform tasks on variable resistor power supply voltage regulators	57	0	-	9	20	3		М	~	N		60	
D3-7 Do you perform tasks on transistor series power supply voltage regulators D3-8 Do you perform tasks on IC power supply voltage regulators D3-9 Do you perform tasks on pulse width modulator power supply voltage regulators	D 304	D3-6 Do you perform tasks on zener diode power supply voltade required.	22		-	м	99	м	•	2			ň	6 0	м
D3-8 Do you perform tasks on IC power supply voltage regulators D3-9 Do you perform tasks on pulse width modulator power supply voltage regulators	D 305	D3-7 Do you perform tasks on transistor series power supply voltage regulators	46	0	-	8	20	8	~	2	•		ñ	8	2
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D 308	D3-10 Do you perform tasks on transistor sames power supply by tasks or transit that the	33	•	0	1 2	54	~	.,	9	0	~	10	55		
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0150	34b. Isolate faulty voltage regulators 2b						!			1	! ! !			;	;
D 301	D3-3 Do you troubleshoot circuits to isolate a faulty power supply voltage regulator	99	-	0	80	20	6 18	8 38	3 47	ι Α	ιή	25	84		
0151	34c. Troubleshoot circuits 2b		-				1	:			;	1			;
D 302	D3-4 Do you troubleshoot power supply voltage regulators to circuit level components	59	H	0	ru 4	17	3 16	6 28	3 31	₹ .	.	24	82		
0152	35. Resistive/Capacitive/Inductive (RCL) Circuits	; ; ; ;	i !								! ! !			1	<u> </u>
0153	35a. Basic operation B									ļ	!			•	:
E 310	El-1 Do you trace schematic or block diagrams of circuits containing resistive capacitive inductive (RCL) circuits	35	•		7 26		m	.	6	•	0	12	59		
0154	35b. Resonant operation		;		1	 	}				!				:
E 312	El-3 Do you trace schematic or block diagrams of circuits containing resonant RCL circuits	23	0	0	4 21		ю	4	4	•	•	€0	52		
0155	35c. Troubleshoot circuits 2b				!					;	:				;
E 311	El-2 Do you troubleshoot RCL circuits to circuit level components	32	0	-	5 21		٧	•	6	•	•	10	59		
E 313	El-4 Do you troubleshoot resonant RCL circuits to circuit level components	21	•	•	3 18		2	9	м	0	•	∞	52		

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0156	35d. Calculations			, ! !				1	1 1	!				1
E 314 E 315	El-5 Do you calculate values of impedance, voltage, or current in RCL circuits El-6 Do you calculate phase angle of RCL circuits El-7 Do you calculate values of power in RCL circuits	13		2 2 2	21 8 8	1 1 5	4 00	1 0 1	4 01W	0 00	9 9 9	30 21 23		
0157	36. Frequency Sensitive Filters (Low Pass, High Pass, Band Pass, Band Reject)	1						i i		 				;
0158	36a. Theory of operation B	; ; ; ;	1	;				į						;
E 317	E2-1 Do you trace schematic or block diagrams of circuits	6	•	ĸ	53	ю	ю	•	м	•	4	30		
E 320 E 322		10	00	1 2 0	21 50	7 2	2 2	• •	12	00	4.0	33		
E 323	Trequency sensitive filters E2-7 Do you perform tasks on high pass	80	-	7	35	7	0	٥	7	0	9	33		
E 324	E2-8 Do you perform tasks on band pass framment cancifies	€0	-	1 2	56	8	-	•	-	0	60	33		
E 325	E2-9 Do you perform tasks on band-raject framements consisting distance.	m	•		12	8	-	•	•	0	9	23		
E 326	E2-10 Do you perform tasks on ferrite bead frequency sensitive filters	8	•	0	ю	•	1	•	•	0	9	11		
0159	36b. Isolate faulty frequency sensitive 2b filters									1 1 1				1
E 318	E2-2 Do you troubleshoot circuits to isolate a faulty frequency sensitive filter	10	0	n 0	53	4	м	•	м	0	4	29		
0160	36c. Troubleshoot circuits 2b			!	! ! ! !									!
E 319	E2-3 Do you troublashoot frequency sensitive filters to circuit level components	9	•	-	32	-	м	•	~	•	9	28		

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0161	36d. Calculations			!			 						! !	
E 321	E2-5 Do you calculate capacitance or inductance values for specific frequency sensitive filters	м	0	0	18	-		0	0	•	4	16		
0162	37. Wave Generating Circuits	1 1 1 3 1											!	1
0163	37a. Theory of operation						1 1 1 3							
0164	37a(1). Oscillators (LC, RC, Crystal) B				į									
F 327	FI-1 Do you trace block diagrams of circuits containing	35	0	r.	9	8	м	4	•	0	•	7.1		
F 328 F 331	OSCILLATOR STREET OF STREET OF OSCILLATOR CIRCUITS F1-5 Do you align or adjust oscillator circuits	34 30	00	4 /	56 56	7 2	8 1	4 10	00	00	60 40	72		
F 332 F 333 F 334	FI-6 Do the oscillators you work with use LC tank circuits FI-7 Do the oscillators you work with use RC networks FI-8 Do the oscillators you work with use crystals	14 19	000	000	29		4 W W	444	000	~ ~ 0	998	57 63		
	Do the oscillators you wor	6		1 61	M	0	· =		•	•	9	15		
F 336	F1-10 Do you perform tasks on series Hartley oscillator circuits F1-11 Do you perform tasks on shunt Hartley oscillator	11			12		0 0	о с м	0 0		• •	35 85		
	tasks on Colpitts oscil	M		· -	•	-			• •	• •	• •	, o		
F 339	tasks on tasks on v	2 2 4		100	9,		100		000		4.0	31		
F 341 F 342	(VCV/VID) F1-15 Do you perform tasks on crystal oscillator circuits F1-16 Do you perform tasks on Wien bridge oscillator	30	1 0	1	6 9		ъ п	0 3	00	00	80 0	59		
F 343	circuits F1-17 Do you perform tasks on pulse generating oscillator	16	0	M	29	7	8	0	0	0	4	43		
F 344	circuits F1-18 Do you perform tasks on blocked/blocking oscillator	м	0 1	•	0	-		0	•	0	3	20		
F 345 F 346	circuits F1-19 Do you perform tasks on burst generators F1-20 Do you perform tasks on RC phase shift oscillators	2 10	0 0		21	00	0 1	0 0 3 1	00	00	4 4	17		

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	37b. Isolate faulty wave generating 2b		! !		! ! !	1	1								!
F 329	F1-3 Do you troubleshoot to isolate a faulty oscillator	33	•	-	5 62	н	0	0	4	•	0	9	20		
F 349	F2-3 Do you troubleshoot to isolate a faulty multivibrator circuit	39	•	0	3 24	-	-	0	8	0	0	9	58		
	Ž	30	•		1 3	-	8	0	1	•	•	8	59		
0168	37c. Troubleshoot circuits 2b	:		1			-				!			; ; ;	!
F 330	F1-4 Do you troubleshoot oscillators to circuit level	30	1	-	2 18	-	61	0	м	0	0	9	89		
F 350	F2-4 Do you troubleshoot multivibrators to circuit	35	0	0	1 21	~	7	0	8	0	0	9	56		
F 362	ioner components F3-4 Do you troubleshoot WSC to circuit level components	27	•	•	1 3		7	•	-	0	•	~	58		
0169	38. Limiter Circuits (Diode, Zener Diode, Transistor)	, - - - -	! !					1		!	1				!
0110	38a. Theory of operation B	; ! !				i !									•
F 373	F4-1 Do you trace block diagrams of circuits containing	20	•		1 21	-	-	•	н	0	0	4	56		
F 374	ou trace schematic d	20	0				~	0	-	0	•		58		
	Do you perform tasks on shunt	12	- 0		2 15			- 0					49 47		
	tasks on tasks on	21	- -				0 0	00	- -	00	00		30 58		
F 385 F 386	F4-13 Do you perform tasks on transistor limiter circuits F4-14 Do you perform tasks on triode limiter circuits	1,4			0 9		0	0 0	0 7	00	• •	0 N	46 23		
0171	38b. Isolate faulty limiters		1	-											•
F 377	F4-5 Do you troubleshoot to isolate a faulty limiter circuit	16	0	•	1 15	7	~	0	7	•	•	4	52		

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T Tsk	Task Title	306 53	361 50	361 3 51 5	362 362 51 53	2 362 54	542	542 51	542 i	545 50 5	545 54 52 73	545 910 73 50	918 50	
0172	38c. Troubleshoot circuits 2b	; ; ; ;	!	-		! ! !	1							:
F 378	F4-6 Do you troubleshoot limiters to circuit level components	14	•	•	1 1	12 1		0	-	•	•	3	£8	
0173	39. Clamper Circuits	1		! !	1	; ; ;	1							
0174	39a. Theory of operation B			!									; ; ; ;	
F 375	F4-3 Do you trace block diagrams of circuits containing	15	0	0	7 0	12 1	٠	0	7	0	0	~	48	
F 376 F 387 F 388		14 11 5	000	• • •	011	12 1 9 1 9 1	440			000	000	040	48 41 25	
0175	39b. Isolate faulty clampers													:
F 379	F4-7 Do you troubleshoot to isolate a faulty clamper circuit	14	•	•	1 12	7	-	•	-	•	•	9	4.5	
0176	39c. Troubleshoot circuits 2b													
F 380	F4-8 Do you troubleshoot clampers to circuit level components	12	•	•	0 12	2	.	•	Ħ	•	•	9	4	
0177	40. Digital Numbering Systems (Binary, Octal, Hexadecimal)	 	! ! !		1 1 1 1	1		} !			f 1 1			
0178	40a. Conversions B		! ! !				1							-
6 389	G1-1 Do you convert decimal numbers to binary numbers or binary numbers to decimal	45	0	r.	23	9	м	1	8	-	7	29	39	
G 390	GI-2 Do you convert octal numbers to binary or binary numbers to octal	29	•	H	13		м	1	6	0	0	9	33	(

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6 391	G1-3 Do you convert hexadecimal numbers to binary or	30	0	-	17	м	_	m	-	8	0	-	20 3	30		
G 392	G1-4 by you convert octal numbers to decimal or decimal	27	•		13	•	н	~	0	-	•		14	33		
6 393	4	53	•		16	6	-	M	•	m	0	1 2	25	59		
6 394	detinat numbers to nexadetinat G1-6 Do you convert octal numbers to hexadetimal or hexadetimal pumbers to hexadetimal or	54	•		11	•	-	2	•	-	0	. 0	12 2	27		
6 395	nexamentment numbers to octai G1-7 Do you convert base number fractions to another base numbering system	23	0	-	6	•	-	-	-	0	•	1 1	•	56		
0179	40b. Math operations B			!			-	1 1	-	:					1	
6 394 6 397 6 399 6 499 6 401 6 402	add binary n subtract bin u multiply bi u divide bina u add octal n u add hexadec u aud hexadec u subtract o	23334445	0000000	44m24400	119 110 110 9	M000000	имиманан	00000000 00	4444400	00000000	444000		164 22	339 330 332 332 27		
0180	40c. Binary Code Systems			!			:	!	{	-	1	-			!	,
6 404 6 405 6 406 6 407 6 409 6 410	G1-16 Do you use binary coded decimal (BCD) G1-17 Do you use gray codes G1-18 Do you use ICAO codes G1-19 Do you use excess-3 (XS3) codes G1-20 Do you use parity bit codes G1-21 Do you use biquinary codes G1-22 Do you use ASCII codes G1-23 Do you use EBCDI codes	9 K K K K K K K K K K K K K K K K K K K	0000000	40000400	36 2 2 2 2 2 2 2	9000m090		m o o o n o a o	H00000H0	1000000	0000000	1000000	4444444 mm	12 6 12 8 8 4 8		
0181	41. Digital Logic Functions (Main Logic Gates and Flip-Flops)	; ;			 	1 1 1	; ; !	; ; ; ;	1 1 1		!			i t t t		
0182	41a. Theory of operation B		!		 	1				1		; ;	į			
6 412 6 413	G1-24 Do you trace data flow through logic symbol diagrams G1-25 Do you trace data flow through logic schematic diagrams	69	00	00	9 1 9	15	0 0	0.0	H H	01 W		00	18 7	70		

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D T Tsk Y Nbr	Task Title	30£ 36] 53 50	361 361 50 51	1 362 51	2 362 53	2 362 54	2 542 50	2 542 51	2 542 52	2 545 50	545 52	545	; 918 50	_
6 417	G1-29 Do you trace data flow through circuits using positive logic (High = Binary 1)	52			4	12]	;; H	м		2 0		0 16	69	_
6 418	trace data f	44	-		4	12	,	~		1 0		0 12	. 51	
	ive rogic (fight - bindry U) Do you perform tasks related to ANI	59	0									0 24		_
G 420	G1-32 Do you perform tasks related to OR gates	59	0 0		10 3	35	0 r	ۍ ر ن	- ·	4.		0 24	80	
	Dalidinit of Dalpies	p r	-											_
6 422	tasks related to	58			10 2	53	2,		- ·	•		0 24		_
	GI-35 Do you perform tasks related to exclusive UK/NUK logic functions	t C	-					J		o J			2	_
	Do you perform tasks related to RS flip flops	32	0	0	5 1	2		m				0 10		•
6 425	related to	33			EO 4	6 6							95	
		5 9 9			rus							2 -		
6 428	tasks related to	20	0		7	~						01.0		
624 9	G1-41 Do you perform tasks related to delay (One-shot) logic functions	35	0	-	J				5	0			25	
6 430	form task	28	0	0	м			N		1 0		4	33	
	R")	7	•		۰									
G 432	G1-49 Do you perform tasks related to inverters	, 6		, –	20	 		n m		9 O		187	22	.
	tasks related to	28	0	•	м	м								
6 434	flops Gl-46 Do you perform tasks related to complementing flip	53	0		м	м	-	-	•	•	0		9	_
0183	41b. Isolate faulty logic function 2b							-	-		į			
6 414	systems	58			м	6 1	~ .	·	0	80	0	0 12	64	
6 7 9	of circuit cards	0	>	-1 ->	A									.
0184	41c. Troubleshoot circuits 2b		!						;	;	į		!	
6 416	G1-28 Do you troubleshoot digital systems, subsystems or circuit cards to circuit level components or IC	20	-	•	ы	6		ď		8		0	2 67	
0185	41d. Logic families (TTL and CMOS) B					1		1	;		; ;			
6 438	G1-50 Do you perform tasks on RTL (resistor transistor	54		0	73			٦	•	-			8 40	_
G 439	logic formally DCIL) Gl-51 Do you perform tasks on DTL (diode transistor logic) - 66 -	58	•		-		-	8		7			15 9	

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055 9	G1-52 Do you perform tasks on TTL (transistor transistor logic)	38 (0	Μ_		1	M	0	н	0	0	12	61		
6 441	61-53.0. Government of the coupled or current mode logical	13 (0	-	0	7	-	0	7	0	0	9	20		
6 442		58 (00	- M	0 M		1 2	00	7 2	0 0	00	12	18 52		
955 955 955 955 955 955	G1-56 Do you perform tasks on positive MOS ICs G1-57 Do you perform tasks on negative MOS ICs G1-58 Do you perform tasks on vertical MOS ICs	16 0 11 0 7 0	000	7 7 7	000	0		000		000	000	9 80 9	23 22 15		
	ean Equations								: ! !	1				1	
0187	42a. Diagram to equation B	; ; ; ;		!				!	; ; ; ;	; ; ;			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
£,	47 Do you develop Bo rcuits or diagrams	17 0	0	M	•	1	7	0	0	0	0	∞	17		
0188	42b. Equation to diagram B	: : : :	!	1 , 1 , 1 ,	1			† † †							
	48 Do you develc	14 0	0	м	•	1	н	•	0	0	0	9	17		
	42c. Simplify Expressions	; ; ; ;	1	1	1	1 1 1		-		1			i i i i		
6 437	Gl-49 Do you simplify Boolean expressions using Boolean algebra	16 0	•	₩)	0	г.	4	0	•	•	•	9	17		
0190	43. Computers	f 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	† \$ †	f t t	1 1	!	1	1 1 1					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
0191	43a. Operation principles B		:	:	! ! !	1		!							
G 447 G 454 G 455	G2-1 Do you trace block or schematic diagrams of computer controlled or computer based systems G2-8 Do you perform tasks on analog computers G2-9 Do you perform tasks on digital computers	41 0 18 0 45 0	4 68	14 6 34	18 0 21	эт юм	m 00	0 00	7 7 7	0 0 7	1 2 1	16 12 16	25 16 22		

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0192	43b. Load programs		!				1)))			1	 		į	
855 5	G2-2 Do you load programs	27		10 2	28 21	1 8	0	1	8	•	-	16	17		
0193	43c. Write/debug programs	!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!									:	1 1 1			
6 449	G2-3 Do you write or debug programs G2-7 Do you use computer flow charts or diagrams	35		44	11 71	9 2	10			00		4	, 16		
0194	43d. Fault isolation	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1									:				
G 450 G 451	G2-4 Do you troubleshoot computers to a major unit G2-5 Do you troubleshoot computers to a subassembly or circuit card	43	00	21	26 21 26 :	3 6	H 10	J 0	חח	00	~ ~	10	19		
0195	43e. Circuit troubleshooting 2b										1	1		-	
6 452	G2-6 Do you troubleshoot computer subassembly or circuit card to circuit level components or IC	30	0	~	9	9	M	6	7	•	7	60	18		
0196	43f. Types of memories														
995 9	G2-20 Do you perform tasks on magnetic (tape, disc, core)	54	•	7	39 18	7	~	•	~	0	-	14	17		
295 9	62-21 Do you perform tasks on semiconductor (RAM, ROM, FPBOM, PPBOM) computer memories	45	•	ю	22	9 6	м	0	-	0	8	12	20		
895 5	G2-25 Do you perform tasks on paper (tape, punch card)	4	0	-	∞	0	7	•	٦	0	0	•	15		
695 9	GL-23 Do you perform tasks on advanced technology (bubble, CCD, electron beam, laser, thin film) computer memories	15	0	0		1 0	1	0	1	0	•	~	rJ		
0197	43g. Peripheral devices		1				:	!			:	1			
G 470 G 471 G 472	G2-24 Do you perform tasks on computer keyboards G2-25 Do you perform tasks on computer character printers G2-26 Do you perform tasks on magnetic tape drives	65 62 57	0 1 0	14 3 7 2 3 3	37 32 28 18 37 0	80 40 M	мнч	000	241	٠ 0 0 0 0 م	мчн	24 16	26 24 11		

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AFSCs Matched to EF/A STS		n tasks on microprocessor computer	n tasks on video display unit (VDU/	tasks on paper tape	m tasks on paper card readers/punches m tasks on toggle or push button	m tasks on incandescent displays (Nixie	1.1.4.4	a tasks on modems - tasks on line printers	tasks on	tasks on	4000	m tasks on femovable pack disc drives m taske on fived dischaster type disc	5		sabenbu	Basic computer language	0	FORTRAN computer language	ADA computer language ATLAS computer language	ELAN computer language	PASCAL computer language	RPG computer language Marbine computer language			Controlled Systems		ation B	block or schematic diagrams of trolled systems
All Sheppard TTC AFSCs	Task Title	G2-27 Do you perform tasks terminals	G2-28 Do you per form monitors)	G2-29 Do you perform	G2-31 Do you perform G2-31 Do you perform	switch inputs 32-32 Do you perform	tubes, LEDs, LCDs)	G2-35 Do you pertorm	G2-35 Do you perform		drives	62-3/ No you perform tasks		11 11 11 11 11 11 11 11 11 11 11 11 11	ing la	G2-10 Do vou use Bas	Do you use	Do you use	G2-14 Do vou use ATA	Do you use	Do you use	G2-17 Do you use RPG	Do you use	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	44. Microprocessor Contr		eory of o	G2-39 Do you trace block microprocessor controll
PRTHOD	D T Tsk Y Nbr	6 473	6 474	6 475	944 9	6 478		6/5		G 482		2 4) (1		6 456			6 459			6 463		1	0199	,	0500	6 485

PRTMOD	All Sheppard TTC AFSCs Matched to EF/A STS PM0002				9 S	cupa. AFOM(Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	1 Ans C) Ra	alysi andol	s Pr ph A	ogran FB T)		Page	40
D T Tsk Y Nbr	Task Title	306 361 53 50	1 361 51	362 51	362 53	362 :	542 5 50 5	542 542 51 52	542 545 52 50	5 545 52	5 545 73	5 918 50		
0201	44b. Isolate faulty microprocessors 2b			1						1	-		!	
984 9	you troubleshoot mic	37	0	72	12	8	M	•	-		1 16	. 41		
6 487	systems to a subassementy or circuit card G2-41 Do you troubleshoot microprocessor controlled systems to isolate a faulty microprocessor	26	0	8	6	8	0	•	-		1 12	36		
0202	45. Logic Circuits	!					1			1				!
0203	45a. Theory of operation	! ! !	1	i ! !									 	1
0204	45a(1). Counters (Synchronous/ Asynchronous-Up/Down counters)			1				į	1	1 1 1			1	
6 488	63-1 Do you trace data flow through circuits containing	0 %	1 1	ĸ	•	7	8	0	7	_	-	8 43		
G 491 G 492	counters G3-4 Do you perform tasks on UP counters in logic circuits G3-5 Do you perform tasks on DOWN counters in logic	35	00	-	m m	00	0 0	00	7 7	00		2 30		
6 493	G3-6 Do you perform tasks on DECADE counters in logic	16	0	0	9	7	8	•	0	0		4 34	_	
565 9	C3-CD you perform tasks on ring counters in logic	16	0	1	•	0	7	•				2 88	-	
6 495	G3-6 Do you perform tasks on modulous counters in logic	ĸ	0	0	•	0	0	0	0			2		
965 9	circuits G3-0 Do you perform tasks on synchronous (parallel) counters	59	0	M	9	-	٦	0	-			+ 22	•	
26497	in logic circuits G3-10 Do you perform tasks on asynchronous (serial) counters in logic circuits	59	0	8	M	-	-	0	•	•		4 22	0 .	
0205	45a(2). Registers (Shift and Storage) B		! !	1										
865 9	G3-11 Do you trace logic diagrams of circuits containing	31	0	м	0	1	1	•	1			8 22	•	
G 501	G3-14 Do you perform tasks on shift registers in logic circuits	35		0	•	8	7	•	-		•	92 9		

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25 0 0 1 0 1 1 0 0 0 0 4 ts to 19 0 1 2 0 2 2 0 2 0 0 6	3-3 Do you tro	ubleshoot counters to circuit level	30	•	7	0	9	7	8	0	0	-	7	•	39		
national logic circuits to $$ 19 $$ 1 $$ 0 $$ 2 $$ 0 $$ 6	5-13 Do you tre	oubleshoot registers to circuit level	25	0	•	7	0	-	7	•	0	0	0	4	22		
	components 3-18 Do you tr circuit level	national logic circuits	19	0	-	8	0	8	8	•	8	0	•	9	27		

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D T Tsk Y Nbr	Task Title	306 53	361 50	361 3	362 362 51 53	362 362 53 54	2 542 50	542	542 52	545 5	545 5	545 918 73 50	918 50		
020	46. D/A, A/D Converters (Approx D/A and Ramp A/D)	1			1				1 1				; ! !	1	
0210	46a. Theory of operation B			;	1										1
G 516 G 517 G 520	64-1 Do you trace data flow through A/D converters 64-2 Do you trace data flow through D/A converters 64-5 Do the converters you perform tasks on use flash conversion	22 1,	000		700	000	020	000	0 0 0	000	100	60 90	45 42 7		
521 522 523	G4-6 Do the conversive appro G4-7 Do the conversion G4-8 Do the conversion G4-8 Do the conversion	3 7 3	o o o	0 0 0	0 17 5	0 0 0	1 1 1 1 0 0	0 0	0 0 0	0 0	0 0 0	0 4 0	111		
0211 6 518 6 519	46b. Isolate faulty converters 2b G4-3 Do you troubleshoot A/D converter circuits G4-4 Do you troubleshoot D/A converter circuits	19	00		12		1 2 1 1 1 1	00	88	00		8.9	45		
0212	47. Transmission Lines														
0213 H 527 H 528 H 531 H 532	47a. Theory of operation B H1-4 Do you construct transmission lines H1-5 Do you match transmission line impedance with loads H1-8 Do you perform tasks on open-wire transmission lines H1-9 Do you perform tasks on twisted pair transmission	5 7 15	65 52 65 31	17 18 20 64	10 9 42 1	6 15 9 6 9 24 15 44	4000	17 5 18 4		0000	0000	112 112 22 39	4 11 12 12		
H 5334 H 535 H 535	lines H1-10 Do you perform tasks on twin lead transmission lines H1-11 Do you perform tasks on flexible coaxial trans- mission lines H1-12 Do you perform tasks on rigid coaxial transmission lines H1-13 Do you perform tasks on fiber-optic transmission lines	8 11 5 4	25 83 76	7 34 20 35	фф м г	3 3 3 4	9 H H	40 0 0	04 0 0	00 0 0		313	ына ст с		
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T Tsk Y Nbr	Task Title	306 361 53 50	361	362 51	362 53	362 54	542	542	52	20 S	52 7	73 5	918 50	
0214	47b. Perform Measurements			:										
Н 524 Н 525 Н 526	H1-1 Do you measure electrical length on transmission lines H1-2 Do you measure physical length on transmission lines H1-3 Do you measure standing wave ratio (SWR) on trans- mission lines	5 35 6 50 2 65	8 8 4 8 8 4	7 9 1	6 9 M	6 14 2	мма	10		000	000	16 20 6	0 N O	
0215	47c. Calculations			í (•	1					; ; ; ;	
Н 529	H1-6 Do you calculate the characteristic impedance (ZO) of transmission lines	30	11	м	м	4	7	0	-	•	•	4	1	
0216	47d. Isolate faulty transmission lines	 		!	!	!	1	1 1				! !		1
Н 530	Hl-7 Do you troubleshoot transmission lines	14 64	45	38	15	37	9	20	7	•	•	27	м	
0217	48. Waveguides	1 1 1 1 1		1 1			1 1						; ; ;	-
0218	48a. Theory of operation B	; ; ; ; ;	!										;	
Н 537	HI-14 Do you trace schematic or block diagrams of circuits	1 31	7	7	0	0	0	~	7	0	٥	0	~	
Н 539 Н 540	- -	0 67 0 50	7.7		00		• •			00	• •	00	7 7	
Н 541	assemblies H1-18 Do you remove or install waveguide or associated coupling hardware components	1 67		-	•	H	0	~	-	•	•	•	1	
0219	48b. Isolate faulty waveguides						!	1						
Н 538	H1-15 Do you troubleshoot circuits to isolate a faulty	1 39	-	-	•	-	0	-	-	0	0	•	rd	

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Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX

PM0002

All Sheppard TTC AFSCs Matched to EF/A STS

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PRTHOD	All Sheppard TTC AFSCs Matched to EF/A STS PM0002	22			ŏš	cupa AFOMC	Occupational USAFOMC (ATC)	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Analysis Program) Randolph AFB TX	Progr AFB	e X	Page	44
D Tsk	Task Title	306 53	361 36 50 51	361 362 51 51	53	362 54	542 542 50 51	2 542 52	545 50	545 5 52 7	545 918 73 50	€0	
0220	49. Microwave Oscillators & Amplifiers		; ; ; ;		, ! !		!				1		
0221	49a. Theory of operation B	† † † † †				! ! !							
H 542	H2-1 Do you trace schematic or block diagrams of circuits	H	~	.,	0	-	0	0	0	0	0	8	
H 545	H2-4 Do you perform tasks on two-cavity klystron microwave oscillators and amplifiers	0	•		•	1	•	1 0	0	0	0	-	
956 H	H2-5 Do you perform tasks on three-cavity klystron microwave oscillators and amplifiers	•	•		0	-	•	1 0	0	•	•		
H 547	H2-6 Do you perform tasks on reflex klystron microwave oscillators and amplifians	•	0		•	7	0	1 1	0	•	•	-	
Н 548	H2-7 Do you perform tasks on traveling wave tube	•	-		•	-	•	0 1	0	•	•	-	
H 549	ALCONOMIC CONTINUES OF SECULATION OF SECULATION OF SECULATION	0	0		•	7	•		0	0	0	J	
	microwave oscillators and amplifiers M2-9 Do you perform tasks on backward wave oscillator	•	-	•	0	-	0	0	c		•	•	
# 551 H 552	M2-10 Do you perform tasks on parametric amplifiers M2-11 Do you perform tasks on yttrium iron garnet (YIG) tuned microwave oscillators and amplifiers	00	00	00	00		00	0 0	00	00			
0222	49b. Tune or Adjust	1		;] 	! ! !							:
H 544	H2-3 Do you tune or adjust microwave oscillators or amplifiers	0	м	0	6	41	•	0	0	•	0	-	
0223	49c. Isolata faulty microwave oscillators 2b or amplifiers	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1) ; ; ;				!		t t i i	-
Н 543	M2-2 Do you troubleshoot circuits to isolate a faulty microwave oscillator or amplifier	-	м	0	•	-	0	0	•	•	•	8	
0224	50. Resonant Cavities	! ! ! ! !		1 1									t t

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⊢Z	•	306 361 53 50	361	362 3	362 3 53 5	362 54; 54 50	542 542 50 51	542	2 545 50	545	545 73	918 50		
0225	50a. Theory of operation				}			1	`					
H H B B B B B B B B B B B B B B B B B B	H3-1 Do you trace schematic or block diagrams of circuits containing resonant cavities H3-6 Do you perform tasks on probe resonant cavities H3-7 Do you perform tasks on loop resonant cavities H3-8 Do you perform tasks on aperture (iris/window) resonant cavities	0 000	0 0 10	4 404	0 000	A AAA	0 000	0 000	0 0 0	0 000	0 000	0 0		
0226 H 554 H 557	cav	0 0	0 0	m m	0 0	H H	0 0	0 0	1 0	0 0	0 0	н о	1 	! ! !
0227 H 555 H 556	Oc. Tune/adjust 3-3 Do you tune or 3-4 Do you tune or	00	00		• •		00	00	00	00	00	0.0	 	1 1 1
60 6	51. Transmitte													
H 563 H 563 H 563 H 563 H 569	51a(1). Amplitude Modulation H4-1 Do you use "AM" modulation principles H4-2 Do you trace block diagrams of AM transmitters H4-3 Do you trace block diagrams of AM transmitter subassemblies or circuit cards H4-4 Do you trace schematic diagrams of AM transmitter subassemblies or circuits cards H4-8 Do you align or adjust AM transmitters or circuits H4-9 Do you calculate percentage of modulation for AM transmitters	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			00000		000 0 00		0000000	1 10 0 0 0	900 0 00	00m 4 0H		

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0231	51a(2). Frequency Modulation		1	1		;	}				!			
Н 593 Н 594 Н 595	300	H 0 0	100	000		000	221	000		000	0 7 7	8 12 12		
Н 596 Н 601 Н 602	subassemblies or circuit cards H4-36 Do you trace schematic diagrams of FM transmitter subassemblies or circuit cards H4-40 Do you align or adjust FM transmitters or circuits H4-41 Do you calculate modulation index for FM transmitters H4-42 Do you measure frequency deviation for FM transmitters	0 040	1 0 0 1	0 000	e ees	0 000		0 000		0 000	1 110	12 12 6 6 6	0 204	
0232						;	;	;			1			1
Н 579	natio to you trace block diagrams of single side band (SSB) transmitters H4-19 Do you trace block diagrams of SSB transmitter subassemblies or circuit cards		,					o 0		0 0	0 0	0 0	0 0	
н 580 н 584 н 585	trace schemati subassemblies align or adjus calculate perc	0 00	0 00			0 00	0 0	0 00		0 00	0 00	0 00	0 00	
0233	51a(4). Pulse Modulation													
H 613 H 613 H 615 H 619 H 620	H4-52 Do you use "PH" modulation principles H4-53 Do you trace block diagrams of PH transmitter subassemblies or circuit cards H4-55 Do you trace schematic diagrams of PH transmitter subassemblies or circuit cards H4-55 Do you trace schematic diagrams of PH trans- mitter subassemblies or circuit cards H4-59 Do you align or adjust PH transmitters or circuits H4-60 Do you calculate pulse recurrence time (PRI) or pulse recurrence frequency (PRF) for PH transmitters H4-61 Do you measure PRI, PRF or pulse width	6 00 H HHH	000 0 00 0	000 0 00 0	NNH H HH H	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		000 0 00 0	010 011 1	000 0 00 0	999 9 99 9	••• • • •	1 10 10 000	

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0234	51b. Isolate faulty transmitters	1							:		!			1
н 565 н 566 н 581			00 0			44 0			00 0	00 0	0 0	0 0 0		
н 582 н 597 н 598	H4-22 Do you troubleshoot SSB transmitters to subassemblies or circuit cards H4-37 Do you troubleshoot FM transmitters to major units H4-38 Do you troubleshoot FM transmitters to sub-	0 0 0	0 00		0 00	0 77	12 0		0 00		0 12 12	7 7 0		
Н 616 Н 617	assemblies of circuit cards H4-56 Do you troubleshoot PM transmitters to major units H4-57 Do you troubleshoot PM transmitters to sub- assemblies or circuit cards	0 0	00	7 7	0 0		00		0 0	00	00	00		
0235	51c. Troubleshoot circuits	1												:
H 567 H 583 H 599	H4-7 Do you troubleshoot AM transmitter subassemblies or circuit cards to circuit level components H4-23 Do you troubleshoot SSB transmitter subassemblies or circuit cards to circuit level components H4-39 Do you troubleshoot FM transmitter subassemblies or circuit cards or circuit level components H4-58 Do you troubleshoot PM transmitter subassemblies	1 0 0	0 0 0 0		0 0 0	. 0	00 11 5	0 0 0	0 0 0	0 0 1 6	0 12	0 0 0		
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0237	52a. Theory of operation	; ; ; ; ; ;	!	; !		; ! !	• •	; ! !		i !				!
0238	52a(1). Amplitude Modulation	: 	!		1 		1 1 1	; t ; ;	!	; ; ;		! ! !	: ! !	:
Н 570 Н 571 Н 572	H4-10 Do you use "AM" demodulation principles H4-11 Do you trace block diagrams of AM receivers H4-12 Do you trace block diagrams of AM receiver subassemblies or circuit cards	111	000		000		000	000	000	000	000	- 2 Z		

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D T Tsk Y Nbr	Task Title	306 53	306 361 53 50	1 361 51	362 51	362 3 53 g	362 5 54 5	542 54 50 51	N	N.	545 545 50 52	5 545 73	5 918 50		
н 573 Н 577	H4-13 Do you trace schematic diagrams of AM receiver subassemblies or circuit cards H4-17 Do you align or adjust AM receivers or circuits		1 0	0 0	- -	0 0		0 0		0 0	0 0		2 2		
0239	52a(2). Frequency Modulation	; ; ; ;				i 1 1 1	 					! ! !			! !
И 603 Н 604 Н 605	H4-43 Do you use "FM" demodulation principles H4-44 Do you trace block diagrams of FM receivers H4-45 Do you trace block diagrams of FM receiver subassemblies or circuit cards		000	000	77	000		4 6 6	000		900	-	888		
Н 606 Н 610 Н 611	H4-46 Do you trace schematic diagrams of FM receiver subassemblies or circuit cards H4-50 Do you align or adjust FM receivers or circuits H4-51 Do you plot receiver signal level curves (RSL) for FM receivers		1 2 0	0 00	н нн	0 00			0 00		0 00	H HO	8 0 9		
0540	52a(3). Single Side Band	; ; ; ;			1 1			1						1	-
H 586 H 587 H 583	H4-26 Do you trace block diagrams of SSB receivers H4-27 Do you trace block diagrams of SSB receiver subassemblies or circuit cards H4-26 Do you trace schematic diagrams of SSB receiver subassemblies or circuit cards H4-32 Do you align or adjust SSB receiver		00 0 0	00 0 0		00 0 0	00 0 0	000		00 0 0	000		00 10		
			!	-	•	•	• !	• ;	>	. !					
Н 622 Н 623 Н 624 Н 625 Н 625	H4-62 Do you use "PH" demodulation principles H4-63 Do you trace block diagrams of PH receivers H4-64 Do you trace block diagrams of PH receiver subassemblies or circuit cards H4-65 Do you trace schematic diagrams of PH receiver subassemblies or circuit cards H4-69 Do you align or adjust PH receivers or circuits		0 0 0 0		1 1 153	000 0 0		000 0 0	0 0 0 0		000 0 0	000 0 0	000 0 0		
0242 H 574 H 575 H 589	52b. Isolate faulty receivers H4-14 Do you troubleshoot AM receivers to major units H4-15 Do you troubleshoot AM receivers to subassemblies or circuit cards H4-29 Do you troubleshoot SSB receivers to major units		0 0 0	0 0		000	14 0	000	000	000			2 2 2 0 0		!

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D T Tsk Y Nbr	Task Title	F) 41	306 361 53 50	1 361 51	1 362	362	362 54	542 50	542 51	542 52	545	545	545 9 73 5	918 50		
N 590	H4-30 Do you troubleshoot SSB receivers to sub- assemblies or circuit cards			0	٦	•	0	0	•	•	0	0	•	-		
H 607 H 608	H4-47 Do you troubleshoot FM receivers to major units H4-48 Do you troubleshoot FM receivers to subassemblies or circuit cards		7 7	00		00		2	00		00		8 10	10		
н 626 н 627	H4-66 Do you troubleshoot PM receivers to major units H4-67 Do you troubleshoot PM receivers to subassemblies or circuit cards		~ O		7 7	00		00	00		00	00	00			
0243	52c. Troubleshoot circuits	1	1			1				;		; !				:
H 576	H4-16 Do you troubleshoot AM receiver subassemblies		-	0	-	•	-	0	0	0	•	0	8	N		
Н 591	of circuit cards to circuit taves components H4-31 Do you troubleshoot SSB receives subassemblies or circuit cards to firmit lavel components			0	-	•	0	•	0	•	•	•	•	0		
609 H	H4-49 Do you troubleshoot FM receiver subassemblies or circuit cards to circuit level components		7	0	_	0	_	7	•	-	•	1	∞	7		
н 628				0	-	•	H	0	•	-	•	•	0	-		
0244	53. Transmission Power					; ; ;										1
0245	53a. Perform measurements B													į		: :
099 I	you measure RF						7	8	-	~	0	-	8	54		
1 662 I 662	Do you measure RF		1 24						00	00	00		0 N	17 18		
I 663 I 664	II-4 Do you measure RF effective power II-5 Do you measure RF output power using wattmeters		0 17 1 52			00		0 0	н н	0 7	00		0.0	17		
0246	53b. Calculations	!	; ; ;	!				!	;	!						i
I 665 I 666 I 667	I2-1 Do you calculate RF apparent power I2-2 Do you calculate RF true power I2-3 Do you calculate RF power loss or gain in db		0 6 0 7 1 18		0 11 0	000	7 7 7	440	000		000	e e.e	400	FU - O - O		

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54a. Theory of operation C248

Н 634 Н 637 Н 638 Н 639	Do you plot graph Do you work with Y Do you work with d Do you work with	0 13 0 20 1 80 0 13	0010	0040	0000	4040	0110	0000	0000		0 4 4 0	0.400	
	H5-11 Do you work with rotary antennas H5-12 Do you work with hertz antennas	0 63 0 14		- 0	0 M	0 0	0 0	00	~ o	0 0			
H 642	8	0 18	0	0	0	0	0	0	0			•	
	Do you work with	69 0	7	0	0	0	0	0		0	0		
	Do you work with	6	0	0	0	0	-	0	0	•			
	å	0 74	7	~	0	~	~	0	~	0	9		_
959 H	å	0 36	-	0	0	0	7	0	0		Ö	9	
	M5-18 Do you perform tasks on rotary antenna arrays	0 61	_	-	0	0	o	0	,	0	0		
H 648	H5-19 Do you perform tasks on stacked (end fire)	0 22	7	0	0	0	•	0				_	
	entenna arrays												
	H5-20 Do you perform tasks on broadside antenna arrays	0 14	-	~	0	0	0	0	0	0		_	_
H 650	H5-21 Do you perform tasks on cardioid antenna arrays	9 0	-	-	0	0	0	0	0	0		_	_
	M5-22 Do you perform tasks on collinear antenna arrays	0 10	-	0	0	0	0	0	0		•	_	_
	M5-23 Do you perform tasks on phase antenna arrays	0 12	-	0	0	-	0	•	_	0		_	_
H 653	H5-24 Do you perform tasks on planar antenna arrays	0	-	0	0	~	0	0	0			_	
	M5-25 Do you perform tasks on antennas with	98 0	-	0	0	-	_	0	H		-		
	vertical polarization												
H 655	H5-26 Do you perform tasks on antennas with	0 87	-	0	0	-	-	0	,		_	_	
	tion												
H 656	H5-27 Do you perform tasks on antennas with	0 43	-	-	0	-	0	0	7	0	_		
727 17	METOR De sei bereetsma derte en endesse mich	1 07	-	-	•	-	-		-				_
	ation patterns	5	-	4	•	4	-	•	4	•		VI	_
H 658	H5-29 Do you perform tasks on antennas with	1 76	~	-	0	0	0	-	-	0		0	
	Ŧ								I				
H 659	H5-30 Do you perform tasks on antennas with	1 91	-	-	0	0		_	0		_	٠.	_
	omnidirectional radiation patterns												
0.500	Kich Das form alignments			1	i !	1	-		;	!		1	
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H5-1 Do you physically align antennas H5-2 Do you electrically align antennas H5-7 Do you measure standing wave ratio (SWR) for antennas

H 630 H 631 H 636

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PRTHOD	All Sheppard TTC AFSCs Matched to EF/A STS	PM0002				ଚ ଧ	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	iona (ATI	Ang C) Rg	alysj andol	is Pr Iph A	ogra	E×	Page	51
D T Tsk Y Nbr	Task Title	306 53	6 361 50	361	362 51	362 53	362 5 54 5	542 54: 50 51	N	01	545 549	545 545 52 73	15 918 5 50	æ	
0250	54c. Isolate faulty antennas					1		1							1
Н 632 Н 633 Н 635	H5-3 Do you troubleshoot loading of antennas H5-4 Do you troubleshoot coupling of antennas H5-6 Do you troubleshoot antenna components		0 57 0 65 1 73		007	000		A H 8	010		000	дел	400	- 2 -	
0251	55. Microphones													; ; ; ;	
0252	55a. Theory of operation	1	; 1 ; 1	 					į					1	
J 668	J1-1 Do you trace block diagrams of circuits containing microphones		e N	•	М	44	16	7	•	•	•	1 1	10 2	56	
	Do you trace sc Do you work on				w 4	44 38	13	2 7	00			1 1	0 9	27 8	
J 673 L 674 L 675	JI-6 Do you work on capacitor microphones JI-7 Do you work on crystal microphones JI-8 Do you work on dynamic microphones		000			6 K %	0 T K		000	000		0 7 0	899	13 13	
	Do you work on velocity				. 0	'n	·	. 0						o ==	
0253	55b. Isolate faulty microphones	()) ! !													!
J 670	o you troub]		ю	•	м	47	16	N	0	•	•	7	12 2	56	
0254	55c. Troubleshoot circuits			;	1	!	1		:	!	!	!	!		!
J 671	J1-4 Do you troubleshoot microphones		0	0	6	29	^	~	0	•	•	-	10 2	22	
0255	56. Speakers	! ! ! ! !			1		:								
		; ; ;					!	į	į	:				1	:
0256	56a. Theory of operation														
J 677	J1-10 Do you trace block diagrams of circuits containing speakers - 81		5 1	0	€	20	56	8	•	•	•	1 1	10 43	ю	

PRTHOD	All Sheppard TTC AFSCs Matched to EF/A STS	PM0002				0cc USA	upat FOMC	ional (ATC	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	lysis Idolp	Prog	e Te	Page		52
D T Tsk Y Nbr	Task Title	306 53	361 50	361	362 3	362 3 53 5	362 542 54 50	542 542 50 51	2 542 52	2 545 50	545 52	545 73	918 50		
J 678	Jl-11 Do you trace schematic diagrams of speaker circuits	S	1	•	9	20	21	2		0	1	10	4.5		
0257	56b. Isolate faulty speakers					1						; ;			
J 679		•	-	•	6	53	54	ю	н	0	1	€0	45		
0258	56c. Troubleshoot circuits	1											!	1	
J 680	J1-13 Do you troubleshoot speakers	м	•	0	4	41	15	8	0	•	-	•	83		
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0560	57a. Theory of operation B	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				 					į		 		
J 681	J2-1 Do you trace block diagrams of circuits containing photosensitive devices	36	Ω.	-	-	0	~	25 27	7		∞	14	52		
J 682	J2-2 Do you trace schematic diagrams of photosensitive device circuits	35	Ŋ	0	-	0		21 30			€	16	53		
J 684		27	9	٦,	-	0					м	12	44		
	J2-6 Do you work on phototransistors	22	00	0 0		- -					~ ~	. 0	4 to		
J 687	on phototubes	0 4	0 0	0 0	-			٠,٧		-	101	•	23		
	J2-9 Do you work on photocells (Photoconductive or Photovoltaic)	7 9 7	22 0	- -							16	14	11 7		
0261	57b. Isolate faulty photosensitive 2b devices							1				;			
J 683	J2-3 Do you troubleshoot to isolate a faulty photo- sensitive device	SS	12	-	-	0	m H	31 47	1	•	13	16	52		
0262	58. Display Tubes				;							;			_

PRIMOD	All Sheppard TTC AFSCs Matched to EF/A STS PM0002				ŏĎ	SAFOM	tion C (A	al An rc) R	Occupational Analysis USAFOMC (ATC) Randolph	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	rogra AFB	Ę×	Page	53	
D T Tsk Y Nbr	Task Title	306 36. 53 50	361 361 50 51	1 362	. 362 53	362 54	542	542 5	542 54 52 50	12 0	LO.	545 918 73 <i>50</i>	œ		
0263	58a. Theory of operation						į	1				:	1 \ 1 1	1	
1 690 1 691 1 693 1 694 1 695	J3-1 Do you trace block diagrams of circuits containing display tubes J3-2 Do you trace schematic diagrams of display tubes or circuits J3-4 Do you adjust or calibrate display tubes or circuits J3-5 Do you work on direct view storage tubes (DVST) J3-5 Do you work on multiple mode storage tubes (MMST) J3-7 Do you work on scan converter tubes (SCT)	w w 0000			0 0 0 0 0	0 0 000		0 0 0000	0 0 0000	0 0 0000	0 0 0000	0 0 0000	1 1 2 2 M 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
9 9	Isolate faulty display tubes Do you troubleshoot to isolate a faulty	м	•	0											
265	ort sub	1 5 1 1 1		! ! !	: !							1			
99	Safety applicable to e	 	i 1 !	: :		 			<u>;</u>		1	-		1	
267	59b. First aid for elect	! ! !										; ;		-	
268	59c. Elect	1 1 1 1									1			:	
0269	Tasks not referenced				1 1 5					}		-		:	
B 175 B 176 B 177 B 178 B 179	B3-4 Do you use audio sine-wave signal generators B3-5 Do you use audio non-sinusoidal signal generators B3-6 Do you use RF less than 1,000MH signal generators B3-7 Do you use RF greater than 1,000MH signal generators B3-8 Do you use white noise signal generators B3-9 Do you use pattern signal generators	15 7 6 1 4 4 34	000000	9 1 2 8 8 1 1 6	79 15 6 6 6	90990	00 1 1 1 1 2	V H H O O O	00000	00000		14 30 6 22 8 21 8 11 6 18 10 25	9011-00		

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Y Nbr	Task Title							51	52				50
	B3-10 Do you use pseudo-random signal generators	10	0				•	•	0	0	0	4	∞
B 182	83-11 Do you use time mark signal generators	16	-	 -	2 3	7	0	-	0	•	0	10	48
	143	14	0				-	-	7	•	•	16	69
B 184	Signat generalisations 85-13 Do vou use TV stone) stone? denerations	4	^	_		0	-	-	c	-	•	æ	17
D 284	asks on vol	37			2 21		-	9	2	4	2	12	. 3
D 285	D1-11 Do you perform tasks on DC to DC converters	41	8	1 19			15	8	10	~	-	16	20
D 286	D1-12 Do you perform tasks on inverters (DC to AC	36	4		32	13		œ	15	4	2	20	28
700	CONVerters)	ç	•					¢		•	-	*	5
	ă	7 [• •			• -	. 0	0	n 0	•	۰ ،	t t	20,0
		li				ı	ı	,	,	ı	,	•	;
869 F	J4-2 Do you trace schematic diagrams of TV systems or	8	0	0	0	1	0	0	0	0	0	4	23
		•	•			•	•	•	•	•	•	•	į
669 (U4-5 Do you troubleshoot IV systems to major	8	0	- -	0	-	0	0	•	0	0	đ	54
J 700	subassempties J4-4 Do you troubleshoot TV systems to circuit	-	0	0	0	1	0	•	0	0	0	4	23
J 701	J4-5 Do you adjust or calibrate TV systems or	8	•		0	_	0	•	0	0	•	4	22
		:	•	•				•	•	•	•	•	;
707	J4-6 UG YOU trace Diock diagrams of laser systems	*	>	>	.	-	-	-	Р.	•	-	-	13
J 703	or schassemblies Us-7 Do you trace schemetic diagrams of laser systems	11	•	•	0	•	0	•	0	•	0	0	12
7.204	U4-8 Do you troubleshoot laser systems to major	14	0	0	0	0	•	0	0	0	0	0	11
J 705	subassemblies .14-9 Do von trombleshoot lasar eveteme to circuit	•	•	•	0	-	-	•	-	-	-	-	o
}	level components	•	,					•	•	•	•	,	
J 706	J4-10 Do you adjust or calibrate laser systems	11	0	•	•	•	0	0	•	0	0	0	•
	or components	•	•	,				•	•	•	•	,	
\e\ \c	U4-II DO YOU THACA DIOCK DIAGRAMS OF INTRAFAC SYSTEMS	n	>	>	>	-	⊣	-	•	9	-	٥	•
J 708	J4-12 Do you trace schematic diagrams of infrared	8	•	•	0	-	_	0	0	0	8	œ	œ
	systems or component circuits												
J 709	J4-13 Do you troubleshoot infrared systems to major	ĸ	•	0	0	-	_	0	•	•	-	œ	œ
	subassemblies												
J 710	J4-14 Do you troubleshoot infrared systems circuit	2	0	0	0	•	7	-	•	0	0	∞	∞
		(
111/	14-15 Do you inspect, clean, or service infrared	ĸ	•	-	0	•	~	-	0	0	~	∞	∞
. 713		N	•					•	•	•	•	•	•
21/6	of-to be you adjust of calibrate intraced systems or components	n	>	-	> >	-	N	>	5	>	4	x 0	x 0

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Report Option Table for Modules

Status	Inventory Sequenc Not Used Not Used
Option	Primary Sort Secondary Sort Print Suppress

Report Option Table for Tasks

Status	Inventory Sequence Not Used Not Used
Option S ⁴	Primary Sort Ir Secondary Sort No Print Suppress No

Description of Reported Module Factors

Valid			Valid	712	712	712	712	712
Range Min			Range Min	00.	00.	00.	8.	00.
Based on All Tasks Within Range Hean S.D. Max Min			Based on All Tasks Within Range Mean S.D. Max Min	98.73	95.35	100.00	95.00	99.24
sd on All S.D.			ad on All S.D.	24.98	15.96	25.87	13.93	30.41
Mean			Base Mean	22.69	8.08	16.51	5.57	35.97
Number Members		Description of Reported Task Factors	Number Members	237	172	34	180	132
Title	Module Statement		Title	Task Statement All DAFSC 30653	A11 DAFSC 36251	A11 DAFSC 36253	A11 DAFSC 36254	A11 DAFSC 91850
Source vector			Source vector		GP0032/PMP			GP0044/PMP
Col Factor	TITLE		Factor	TITLE F0026	F0029	F0030	F0031	F0041
Col	~		Col	~ ~	М	Ŧ	r,	•

PRTHOD	D Sheppard TTC CETP AFSCs matched to Shepard EP POI	PM0013		Occupati USAFOMC	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	is Program Iph AfB TX	Page	Ν
Electr specia Data f	Electronic Principles Inventory (EPI) data for Air Force specialties is presented below in Shepard TTC EP POI order. Data for this report was collected from job incumbents during the period March 1987 - September 1988	e.						
Percen	Percent members responding "YES" is shown for each specialty listed.	sted.						
for as	for assistance in using this EPI printout phone USAFOMC/OMYA, at AUTOVON 487-6811.							
D T Tsk		701		ì	•	į		
₹	Task Title	53	362 51	362 53	362 54	918 50		
0001	POI J3AQR30020 003 ELECTRONIC PRINCIPLES, dated 31 Oct 84, SHEPFARD TECHNICAL TRAINING CENTER Volume 1 of 7 Volumes							}
0005	IA. DC Circuits							;
0003	03 IA 1. Orientation and Study Skills	2/0						;
0000	IA 2. Safety and First Aid	1.5/0						1
9000	IA 2a. From a group of ten statements, select the six that describe safety precautions which should be observed when working on electronic equipment. CTS: I MEAS: PC	(0/5.)						1

PRTHOD	Sheppard TIC CETP AFSCs matched to Shepard EP POI	PM0013			Occupatio USAFOMC (Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	is Program lph AFB TX	Page	м
D T TSK Y Nbr	Task Title	w rd	306 53	362 51	362 53	362 54	918 50		
9000	IA 2b. From a group of ten statements, select the six which specify the proper first aid measures used in the treatment of victims of severe electrical shock. CTS: I MEAS: PC	(.5/0)							1
0000	IA 2c. From a listing of the different types of fire extinguishers, select the type of fire extinguisher used on electrical fires. CTS: 1 MEAS: PC	(0/5.)							1
8000	IA 3. Electronic Mathematics	6.5/4	1	, , , ,				; ; ; ;	;
6000	IA 3a. Given ten numerical values, convert them to scientific notation, correctly solving six of the ten conversions. CTS: 3 MEAS: PC	(1.5/0)							<u> </u>
4	Al-1 Do you use metric terms (example mili, kilo, mega)		99	55	89	25	9.5		
0010	IA 3b. Given five problems requiring the addition of two numbers expressed in scientific notation, correctly solve three of the five problems.	(1/0)	: ! ! !		 	; ; ; ; ; ; ;			1
A 1	Al-1 Do you use metric terms (example mili, kilo, mega)		99	35	89	25	95		
0011	IA 3c. Given five addition, five subtraction, five multiplication, and five division problems, use basic arithmetic procedures to correctly solve three problems in each group. CTS: 3 MEAS: PC	(0/2)							1
9 ⋖	Al-6 Do you calculate values of DC voltage, current, resistance, or power		8	34	89	56	62		

PRTHOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI PM0013			Occupational USAFOMC (ATC)	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Analysis Program) Randolph AFB TX	Page	4
D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0012	IA 3d. Given five problems requiring the subtraction of two numbers expressed in scientific notation, correctly solve three of the five problems. (1/0)			 				t !
~ ~	Al-1 Do you use metric terms (example mili, kilo, mega) Al-6 Do you calculate values of DC voltage, current, resist- ance, or power	99	55 34	89	25 26	95		
0013	IA 3e. Given five problems requiring the multiplication of two numbers expressed in scientific notation, correctly solve three of the five problems. CTS: 3 MEAS: PC							1
V V	Al-1 Do you use metric terms (example mili, kilo, mega) Al-6 Do you calculate values of DC voltage, current, resistance, or power	99	34	89	25 26	95 79		
0014	IA 3f. Given five problems requiring the division of two numbers expressed in scientific notation, correctly solve three of the five problems. CTS: 3 MEAS: PC (1/0)	 		1 1 1 1 1 1 1 1	1 2 4 5 6 8 9 1			1
< <	Al-1 Do you use metric terms (example mili, kilo, mega) Al-6 Do you calculate values of DC voltage, current, resist- ance, or power	99 48	35	89	25 26	95 79		
0015	IA 3g. Given ten numbers expressed in scientific notation, convert the power of ten portion to a metric prefix, correctly solving six of the ten conversion. CTS: 3 MEAS: PC	1 1 1 1 1 1	1 t 1 1 1 4 4 4					!
4	Al-1 Do you use metric terms (example mili, kilo, mega)	99	55	89	25	95		

PRTHOD	Sheppard TIC CETP AFSCs matched to Shepard EP POI	PM0013		Occupati USAFOMC	onal Analy (ATC) Rand	Occupational Analysis Program USAFOHC (ATC) Randolph AFB TX	Page	κ
D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0016	IA 3h. Given sufficient data, solve for the unknown value in given formulas (equations). At least two of three problems must be solved correctly for each of the methods listed. CTS: 3 MEAS: PC (0/2)						1	1
9 ≺	Al-6 Do you calculate values of DC voltage, current, resistance, or power	48	34	89	56	79		
0017	IA 4. Bas				1			1
0018	IA 4a. Given a schematic diagram of a DC circuit containing the approved symbols for a switch, fuse, lamp, battery, and conductor; correctly label at least three of the five devices. CTS: 4a (1/0)		1 				; ; ; ; ; ;	•
4	Al-4 Do you trace schematic or block diagrams of circuits containing conductors, fuses, lamps, switches, or batteries	95	92	100	95	8 6		
0019	IA 4b. Given ten terms and ten definitions associated with the electron theory, correctly match at least six of the terms with their definitions. CTS: 4a MEAS: PC (2/0)		1 1 1 1 1 1 1 1				 	:
∨	Al-2 Do you use basic DC electrical/electronic terms	26	95	100	92	66		
0000	IA 4c. From a list of eight items, select those that represent the correct definition, symbol, and unit measurement for current. At least two of the three responses must be correct. CTS: 4a MEAS: PC (1/0)			 			1 1 1 1 1 1	!
۷ ۷	Al-2 Do you use basic DC electrical/electronic terms	26	95	100	92	66		

PRTHOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI PM0013	13		Occupatio USAFOMC	onal Analys (ATC) Rando	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Page	•
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0021	IA 4d. From a list of eight items, select those that represent the correct definition, symbol, and unit of measurement for voltage. At least two of the three responses must be correct. CTS: 4a MEAS: PC (1/0)							1
A	Al-2 Do you use basic DC electrical/electronic terms	26	96	100	92	66		
0022	IA 4e. Given a list of the five methods of producing an EMF, a list of five symbols, and a list of five examples; correctly match each symbol and example with its method. At least six of the ten responses must be correct. CTS: 4a MEAS: PC			; ; ; ; ; ; ; ;				
A	Al-2 Do you use basic DC electrical/electronic terms	26	95	100	92	66		
0023	IA 4f. From a list of eight items, select those that represent the correct definition, symbol, and unit of measurement for resistance. At least two of the three responses must be correct. CTS: 4a MEAS: PC (1/0)		1 1 1 1 1 1 1			; ; ; ; ; ; ; ; ; ;		:
α <	Al-2 Do you use basic DC electrical/electronic terms	26	95	100	92	66		
0024	IA 4g. Given a list of the four factors that affect the resistance of a conductor and five incomplete statements, complete each statement by selecting the correct factor. At least three of the five answers must be correct. CTS: 4a MEAS: PC							!
A	Al-2 Do you use basic DC electrical/electronic terms	26	95	100	92	66		
0025	IA 4h. Given the schematic symbols for a fixed, tapped, and variable resistor, and a list of their names; correctly match the resistor name with its symbol. All matches must be correct.				 			•
6 4	Al-9 Do you trace schematic or block diagrams of circuits containing resistors	92	69	26	52	26		

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A 11	Al-11 Do you calibrate or adjust circuits by using variable resistors	85	64	88	21	95		
0026	IA 4:. Given a resistor color code guide and the color coding of ten resistors, determine the ohmic value of each resistor. Six of the ten resistor values must be determined correctly. CTS: 4a (0/1.5)				 			1
A 13	Al-13 Do you determine ohmic value of a resistor using the color code	69	43	42	13	۶۶		
0027	IA 4j. Given ten problems, each containing two known values, use Ohm's Law to correctly solve for the third or unknown value. At least six of the ten responses must be correct. CTS: 4a MEAS: PC	 	 	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	 			-
9 4	Al-6 Do you calculate values of DC voltage, current, resistance, or power	84	34	89	56	62		
0028	IA 5. Multimeter Uses 7.5/2							!
0029	IA 5a. Given a multimeter and circuit card PC 130-1A, use the ohmmeter function to correctly measure the value of ten selected resistors. At least six of the ten readings must be within prescribed limits. CTS: 2b MEAS: PC							:
A 14 B 160	Al-14 Do you ohm check resistors Bl-8 Do you use the multimeter to measure component resistance	91 89	58 64	91 91	27 41	96 96		

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0030	IA 5b. Given a multimeter, trainer console, and circuit card PCL30-2; use the voltmeter function to correctly measure the voltage drop across eight resistors. At least five of the eight readings must be within prescribed limits. CTS: 2b MEAS: PC (3/0)							1
B 153	B1-1 Do	66	91	26	83	86		
0031	IA 5c. Given a multimeter, trainer console, and circuit card PC 130-4; use the ammeter function to correctly perform ten different current measurements. At least six of the ten readings must be within prescribed limits. CTS: 2b MEAS: PC				 			!
B 156	Bl-4 Do you use the multimeter to measure DC current values	85	29	92	52	93		
0032	IA 5d. Given a list of eight terms and a list of eight statements that apply to digital multimeters, correctly match at least five of the terms with the appropriate statement. CTS: 2b MEAS: PC				 		: : : : :	1
B 188	84-4 Do you use digital multimeters	95	81	46	59	96		
0033	IB. DC Circuits							:
0034	IB 8. Series Resistive Circuits 8/2	1 1 1 1 1 1 1 1	; ; ; ; ;		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1

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0035	}	IB &a. Given the applicable formulas and a schematic diagram of a series DC circuit containing three resistors with selected values of resistance, current, voltage, and power shown; correctly solve for at least eight of the twelve unknown values. CTS: 4b MEAS: PC							1
<	9 21	Al-6 Do you calculate values of DC voltage, current, resistance, or power Al-12 Do you calculate the value of a resistor required for a circuit	4 4 8 &	34	68	26	79		
0036	!	IB 8b. Given a trainer console, series DC circuit card, and a multimeter, measure circuit resistance, current, and voltage. At least six of the nine required responses must be within prescribed limits. CTS: 4b MEAS: PC (2/0)						 	1
B 153 B 156 B 159		B1-1 Do you use the multimeter to measure DC voltage values B1-4 Do you use the multimeter to measure DC current values B1-7 Do you use the multimeter to measure circuit resistance	99 85 78	91 67 74	97 76 85	83 52 62	98 93 55		
0037		IB 8c. Given five schematic diagrams of series DC circuits containing simulated malfunctions, determine the type of malfunction (short or open) and the malfunctioning component. At least three of the five malfunction conditions must be identified correctly. CTS: 4c MEAS: PC							<u> </u>
∢	ısı	Al-5 Do you troubleshoot circuits containing conductors, fuses, lamps, switches, or batteries	26	91	26	46	86		
0038	1	IB 8d. Given a trainer console, series DC circuit card, a multimeter, and an instructor installed malfunction; determine the malfunctioning component and the type of malfunction (short, open, or changed value). CTS: 4c MEAS: PC			; ; ; ; ; ; ;				1
⋖		Al-5 Do you troubleshoot circuits containing conductors, fuses, lamps, switches, or batteries	26	91	26	5 6	86		
Ā ∀	01	Al-10 Do you troubleshoot circuits to isolate a faulty resistor - 91 -	68	62	91	56	96		

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0039	IB 9. Parallel Resistive Circuits	6/4						1
0500	IB 9a. Given the applicable formulas and a schematic diagram of a parallel DC circuit containing three resistors with selected values of resistance, current, voltage, and power shown; correctly solve for at least eight of the twelve unknown values. CTS: 4b MEAS: PC	(0)						!
9 4	Al-6 Do you calculate values of DC voltage, current, resist ance. or bower	st- 48	34	89	56	79		
A 12	Al-12 Do you calculate the value of a resistor required for a circuit	45	59	59	10	65		
0041	IB 9b. Given a trainer console, parallel DC circuit card, and a multimeter; measure circuit resistance, current, and voltage. At least six of the nine required responses must be within prescribed limits. CTS: 4b MEAS: PC (1.5/0)	(0,					 	!
B 153 B 156 B 159	B1-1 Do you use the multimeter to measure DC voltage values B1-4 Do you use the multimeter to measure DC current values B1-7 Do you use the multimeter to measure circuit resistance	ss 99	91 67 74	97 76 85	83 52 62	8 6 6 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		
00042	IB 9c. Given the schematic diagrams of four bridge circuits, with component values shown and the ratio formula; determine whether each circuit is balanced or unbalanced. At least these of the four responses must be correct. CTS: 4b MEAS: PC	(0/2)						!
A 12	Al-12 Do you calculate the value of a resistor required for a circuit	43	59	59	10	65		

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0043	IB 9d. Given a trainer console, parallel DC circuit card, a multimeter, and an instructor installed malfunction; determine the malfunctioning component and the type of malfunction (short, open, or changed value). CTS:4c MEAS: PC							!
A 10	Al-10 Do you troubleshoot circuits to isolate a faulty resistor	89	29	91	54	96		
4400	IB 9e. Given three schematic diagrams of parallel DC circuits containing simulated malfunctions, determine the type of malfunction (short or open) and the malfunctioning component. At least two of the three malfunction components be identified correctly. CTS: 4c MEAS: PC						1 1 1 1 1 1	t t
A 10	A1-10 Do you troubleshoot circuits to isolate a faulty resistor	68	62	91	54	96		
0 0 4 5	IB 10. Series-Parallel Resistive Circuits 10/2	t 1 1 1 1 1 5 5 8	1 1 1 1 1 1 1					1
9900	IB loa. Given the applicable formulas and a schematic diagram of a series-parallel DC circuit containing three resistors with selected values of resistance, current, voltage, and power shown; correctly solve for at least ten of the fifteen unknown values. CTS: 4b MEAS: PC						! ! ! !	1
⋄	Al-6 Do you calculate values of DC voltage, current, resistance, or power	48	34	89	56	79		

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0067	IB lob. Given a trainer console, series-parallel DC circuit card, and a multimeter; measure circuit resistance, current, and voltage. At least eight of the eleven required responses must be within prescribed limits. CTS: 4b MEAS: PC							1
B 156 B 159	B1-4 Do you use the multimeter to measure DC current values $B1-7$ Do you use the multimeter to measure circuit resistance	85 78	79	76 85	52 62	93 85		
0 0 0 0	IB 10c. Given a trainer console, voltage divider circuit card, and a multimeter; determine the voltage changes when a load is added. At least four of the six required responses must be within prescribed limits.						1	}
9 V	Al-6 Do you calculate values of DC voltage, current, resistance, or power	8	34	89	56	62		
A 12	Al-12 Do you calculate the value of a resistor required for a circuit	£3	59	59	10	59		
6300	IB 10d. Given a trainer console, series-parallel DC circuit card, a multimeter, and an instructor installed malfunction; determine the malfunctioning component and the type of malfunction (short, open, or changed value). CTS: 4c HEAS: PC							•
A 10	Al-10 Do you troubleshoot circuits to isolate a faulty resistor	68	62	91	54	96		
0920	IB 10e. Given three schematic diagrams of series- parallel DC circuits containing simulated malfunctions, determine the type of malfunction (short or open) and the malfunctioning component. At least two of the three malfunction conditions must be identified correctly. CTS: 4c MEAS: PC						 	;
A 10	Al-10 Do you troubleshoot circuits to isolate a faulty resistor	89	62	91	58	96		

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0051	IB 11. Magnetism and Relays							-
0052	IB 11a. Given a list of four statements and/or functions, and a list of four terms related to magnetism, correctly match at least three of the terms with its statement/function. CTS: 4d MEAS: PC (1/0)							
	Al-15 Do you trace schematic or block diagrams of circuits containing relays	78	78	56	נ	96		
0053	IB lib. Given a list of five statements and/or functions, and a list of five terms related to relay construction and operation, correctly match at least three of the terms with its statement/function. CIS: 4e MEAS: PC							1
A 15	Al-15 Do you trace schematic or block diagrams of circuits containing relays	82	78	5 6	22	96		
300	IB llc. Given a schematic diagram of a relay control circuit and selected circuit conditions, trace current in the circuit to determine relay/component condition. Three of the five given circuit conditions must be solved correctly. CTS: 4e MEAS: PC (1.5/0)	1						-
A 16	Al-16 Do you troubleshoot circuits to isolate a faulty relay	76	7.7	91	62	96		
A 19	Al-19 Do you continuity check relays	72	29	88	41	92		
055	ELECTRONIC PRINCIPLES Volume 2 of 7 Volumes		1 1 1 1 1 1					1
0056	IIA. AC Circuits				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			:

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0057	IIA 1. AC Terms and Values	0/5							}
0058	IIA la. Given a pictorial diagram of an AC waveform and a list of ten terms, label the waveform with the proper term in the appropriate space. Eight of the ten required responses must be correct. CTS: 5a Meas: PC	(1/0)							;
m ∢	Al-3 Do you use basic AC electrical/electronic terms		26	06	26	88	66		
00059	IIA 1b. Given five problems, the required formulas, and the effective, average, peak, or peak-to-peak voltage values; correctly solve for two of the three unknown voltage values in each problem CIS: 5a Heas: PC	(1.5/0)				 			;
~	Al-7 Do you calculate values of AC effective voltage, average voltage, or peak-to-peak voltage		6,	5.5	89	17	29		
0900	IIA 1c, Given the frequency, period (time), or wavele for five AC waveforms, correctly solve for the unkno values for three of the five given waveforms, CTS: 5 Meas: PC	ngth wn a (1.5/0)						† 	; ;
∞ ∢	Al-8 Do you calculate values of frequency, phase relationship, or wave length		47	28	7.	11	70		
0061	IIA 2. Generators and Motors	2/4	; ; ; ; ; ; ;			; ; ; ; ;		; ; ; ;	:

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0062	IIA 2a. Given a list of five terms and a list of five statements/functions related to AC generators, correctly match at least three of the terms with its statement/function. CTS: 5b Meas: PC							
A 57	A2-13 Do you trace schematic or block diagrams of circuits containing AC generators A2-16 Do you perform tasks on component parts of AC generators	o ru	c o 4	12	4 0	3 2 3 8 5 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		
0063	IIA 2b. Given a list of five terms and a list of five statements/functions related to DC generators, correctly match at least three of the terms with its statement/function. CTS: 5b Meas: PC (1/0)			 			 	• •
A 53	A2-9 Do you trace schematic or block diagrams of circuits containing DC generators A2-12 Do you perform tasks on component parts of DC generators	11	12 8	v 0	4 H	36		
9900	IIA 2c. Given three multiple-choice questions related to AC motors, each question having four options, correctly answer at least two of the three questions. CTS: 5c Meas: PC							; ;
A 49	A2-5 Do you trace schematic or block diagrams of circuits containing AC motors A2-8 Do you perform tasks on AC motor component parts	83	6 9	m •	10	93 81		
9000	IIA 2d. Given three multiple-choice questions related to DC motors, each question having four options, correctly answer at least two of the three question. CTS: 5c Meas: PC (0/2)	1						
A 45	A2-1 Do you trace schematic or block diagrams of circuits containing DC motors A2-4 Do you perform tasks on DC motor component parts	70	17	ч о м	12	92		

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9900	IIA 3. Oscilloscopes and Oscilloscope Applications	0/9	1					 	1 1
2900	IIA 3a. Given ten statements associated with the front panel controls of an oscilloscope, match each statement to the front panel control it describes. Eight of the ten statements/controls must be matched correctly. CTS: 2a Meas: PC	(2/0)							† 1
B 161	B2-1 Do you use the oscilloscope to measure time to		69	20	82	4	92		
B 162	determine frequency B2-2 Do you use the oscilloscope to measure time (rise,		89	15	62	м	89		
	the oscilloscope to measure AC		84	18	82	7	93		
B 164	B2-4 Do you use the oscilloscope to measure DC voltage B2-5 Do vou use the oscilloscope to measure ribble voltages	800	89 73	50 7	8 2 2 3	∞ ∾	9 5 8		
	the oscilloscope to measure	i vi	53	. 7 2	51.0	ı m ч	5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
	the oscilloscope to observe		18	۸ د	'n	» «	18		
B 169	patterns B2-9 Do you use the oscilloscope to observe phase		56	æ	56	M	7.7		
B 170 B 171	B2-10 Do you use attenuator probes with oscilloscopes B2-11 Do you use delay time multipliers with oscilloscopes		27	33	24 15	44	81 35		
9	IIA 3b. Given an oscilloscope, trainer console, and circuit card 10, determine the amplitude of five selected AC voltages. Three of the five measured values must be within prescribed limits.	(1.5/0)							:
B 163 B 164	B2-3 Do you use the oscilloscope to measure AC voltage B2-4 Do you use the oscilloscope to measure DC voltage		8 9 9 8	18 20	82 82	~ 8 0	93		

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6900	IIA 3c. Given an oscilloscope and a signal source, determine the frequency of five selected AC waveforms. At least three of the five frequencies measured must be within prescribed limits. CTS: 2a Meas: PC						 	•
B 161 B 162	B2-1 Do you use the oscilloscope to measure time to determine frequency B2-2 Do you use the oscilloscope to measure time (rise, fall, pulse width, etc)	69 89	20	82 79	st m	92 89		
0000	IIA 3d. Given an oscilloscope, a trainer console, and circuit card 12, determine the phase angle between two waveforms. The measurement must be within prescribed limits. CTS: 2a Meas: PC							1
B 165 B 166 B 167 B 168 B 169	B2-5 Do you use the oscilloscope to measure ripple voltages B2-6 Do you use the oscilloscope to measure phase jitters B2-7 Do you use the oscilloscope to observe signal/data patterns B2-8 Do you use the oscilloscope to observe lissajous patterns B2-9 Do you use the oscilloscope to observe phase relationships	73 23 80 18 56	7 115 2 8	53 59 56 3	0 M 40 M M	68 26 72 18		
0071	IIA 4. Inductance and Inductive Reactance 5/0							:
0072	IIA 4a. Given a schematic diagram of an inductive circuit with selected circuit values, solve for total inductance. Five of the eight given problems must be solved correctly. CTS: 5a Meas: PC							[
A 22 A 24 A 25	A1-20 Do you trace schematic or block diagrams of circuits containing inductors, chokes, or choke coils A1-22 Do you calculate values of circuit total inductance A1-24 Do you calculate values of circuit voltage or current in circuits containing inductors A1-25 Do you calibrate or adjust circuits by using variable inductors	60 17 22 30	7 & & & &	71 35 32 32	6 44 E	9 6 8 4 6 6 8 9 6 9 6 9		

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0073	IIA 4b. Given a schematic diagram of an inductive circuit with selected circuit values and the signal frequency, solve for total inductive reactance. Five of the eight given problems must be solved correctly.	(6			1 1 1 1 1 1			-
A 24	Al-23 Do you calculate values of circuit or component inductive reactance Al-24 Do you calculate values of circuit voltage or current in circuits containing inductors	15	e0 e0	35	4 4	36		
\$200 \$200	IIA 4c. Given an oscilloscope, signal generator, trainer console, and circuit card 13, determine the effect on inductive reactance in a circuit when either the signal frequency or inductance is varied. Three of the four readings obtained must be within prescribed limits. CIS: 5e Meas: PC	6						}
A 20	Al-20 Do you trace schematic or block diagrams of circuits containing inductors, chokes, or choke coils Al-25 Do you calibrate or adjust circuits by using variabli inductors	30	6 6	71	19	88 5.9		
0075	IIA 5. Transformers 4	4/2						;
9200	IIA 5a. Given a list of ten terms and ten definitions/ statements associated with the principles of transformers, match the terms with the appropriate definition/ statement. Six of the ten required responses must be correct. CIS: 5d Meas: PC							;
A 35 A 39	Al-35 Do you trace schematic or block diagrams of circuits containing transformers Al-39 Do you calibrate or adjust circuits using variable transformers	87	9 9	44	27	95		

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0077	IIA 5b. Given five multiple-choice questions related to transformer troubleshooting, each question having four options, correctly answer at least three of the five questions. CTS: 5d Heas: PC							
A 40 A 41	Al-36 Do you troubleshoot circuits to isolate a faulty transformer Al-40 Do you ohm check transformers Al-41 Do you measure transformer output voltage	83 71 78	22 16 20	94 76 71	23	8 6 83 6 83		
0078	IIA 5c. Given four schematic diagrams of a conventional transformer connected to a resistive load, the input voltage, and the primary to secondary turns ratio; determine the secondary voltage and current. Six of the eight required responses must be correct. CTS: 5d Meas: PC							}
A 37	Al-37 Do you calculate transformer voltage or current step-up or step-down ratios Al-38 Do you calculate impedance of transformers	39	ra ra	3 50 38	ь к	63 39		
6200	IIA 5d. Given the schematic symbols for a power transformer, an audio frequency transformer, a radio frequency transformer, match trequency transformer, match the schematic symbol to the type of transformer. Three of the four required responses must be correct. CTS: 5d Meas: PC (1/0)		; ; ; ; ;	1 1 1 1 1 1 1				!
A 35	Al-35 Do you trace schematic or block diagrams of circuits containing transformers Al-39 Do you calibrate or adjust circuits using variable transformers	87	9 9	94	27	95		
0800	IIA 5e. Given a multimeter, trainer console, and circuit card 21, determine the malfunctioning transformer and the type of malfunction (short or open). Three of the four given malfunctions must be diagnosed correctly.							•
A 36	Al-36 Do you troubleshoot circuits to isolate a faulty transformer	83	22	46	23	93		

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A 40	Al-40 Do you ohm check transformers Al-41 Do you measure transformer output voltage	71	16 20	76	11	8 3		
8081	IIA 6. Capacitance and Capacitive Reactance 6.5/2							!
0082	IIA 6m. Given a list of eight terms and a list of eight statements/functions associated with the basic principles pertaining to the electrical and physical properties of capacitors, correctly match at least six of the terms with their statement/function. CTS: 5a Meas: PC							1 1
A 27	Al-27 Do you trace schematic or block diagrams of circuits containing capacitors	89	99	26	58	96		
A 32	Al-32 Do you calibrate or adjust circuits using variable capacitors	35	20	59	7	19		
0083	IIA 6b. Given a schematic diagram of a capacitive circuit with selected circuit values, solve for total capacitance. Five of the eight given problems must be solved correctly. CTS: 5e Meas: PC							:
A 31	A1-29 Do you calculate values of circuit total capacitance A1-31 Do you calculate values of circuit or component voltage or current in circuits containing capacitors	31	2 2 2 2	44 44	11 8	85 Z		
280	IIA 6c. Given a schematic diagram of capacitive circuit with selected circuit values and the signal frequency, solve for the total capacitive reactance. Five of the eight given problems must be solved correctly. CTS: 5e Meas: PC (1/0)							}
A 30	Al-30 Do you calculate values of circuit or component capacitive reactance	54	20	41	7	43		

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0085	IIA 6d. Given six capacitors, six inductors, and an ohmmeter, test each capacitor and each inductor to determine its condition. The condition of at least four capacitors and four inductors must be identified correctly. CIS: 59 Meas: PC	(0/2)						! ! !
A 28	Al-28 Do you troubleshoot circuits to isolate a faulty capacitor Al-33 Do you ohm check capacitors	98	62 46	91	33 23	96 88		
9800	IIA 6e. Given an oscilloscope, signal generator, trainer console, and circuit card 12, determine the effect on capacitive reactance in a circuit when either the signal frequency or capacitance is varied. Three of the four readings obtained must be within prescribed limits. CTS: 5e Meas: PC	(0)					; ; ; ; ; ;	! ! !
A 27	Al-27 Do you trace schematic or block diagrams of circuits containing capacitors Al-32 Do you calibrate or adjust circuits using variable capacitors	88 3.5 2.5	9 6 6	97	58	96		
0087	IIB. AC Circuits IIB 9. Series RCL Circuits and Resonance	8/2						
6800	IIB 9a. Given the schematic diagram of a series RC circuit with component values, applied voltage and frequency, and the appropriate formulas; solve for total impedance, total current, component voltage drops and approximate phase angle. At least three of the five required responses must be correct. CTS: 5e Meas: PC	(0)						
E 310	El-1 Do you trace schematic or block diagrams of circuits containing resistive capacitive inductive (RCL) circuits	34	^	56	м	49		

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E 314 E 315 E 316	El-5 Do you calculate values of impedance, voltage, or current in RCL circuits El-6 Do you calculate phase angle of RCL circuits El-7 Do you calculate values of power in RCL circuits	13 7 10	0 N N	21 3	1 5	30 21 23		
0600	IIB 9b. Given the schematic diagram of a series RL circuit with component values, applied voltage and frequency, and the appropriate formulas; solve for total impedance, total current, component voltage drops and approximate phase angle. At least three of the five required responses must be correct. CTS: 5e Heas: PC							i i
	E1-1 Do you trace schematic or block diagrams of circuits containing resistive capacitive inductive (RCL) circuits	34	~	56	м	49		
E 314 E 315 E 316	El-5 Do you calculate values of impedance, voltage, or current in RCL circuits El-6 Do you calculate phase angle of RCL circuits El-7 Do you calculate values of power in RCL circuits	13 7 10	N N N	21 3	2 44	30 21 23		
0091	IIB 9c. Given the schematic diagram of a series RCL circuit with component values, applied voltage and frequency, and the appropriate formulas; solve for total impedance, total current, component voltage drops and approximate phase angle. At least four of the six required responses must be correct. CTS: 5e Meas: PC							}
E 310 E 314 E 315	E1-1 Do you trace schematic or block diagrams of circuits containing resistive capacitive inductive (RCL) circuits E1-5 Do you calculate values of impedance, voltage, or current in RCL circuits E1-6 Do you calculate phase angle of RCL circuits	34 13 7	7 8 8	2 6 21 3	ю с н	30 64		
E 316	f power in	10	8	ю	1	23		

PRTHOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI PM0013			Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	l Analysis C) Randolp	Program th AFB TX	Page	23
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2600	those statements that correctly describe series RCL circuit behavior/characteristics as the circuit approaches resonance, when the circuit is at resonance, or as the circuit departs from resonance. At least four of the six required responses must be correct. CTS: 5f Meas: PC							!
E 312	El-3 Do you trace schematic or block diagrams of circuits containing resonant RCL circuits	23	4	21	m	52		
	IIB 90. Given a chart specifying parameter changes in a series RCL circuit, indicate the effect (increase, decrease, remain the same) on total impendance, total current, and phase angle when the circuit is at, above or below resonance. At least eight of the twelve required responses must be correct. CTS: 5f Meas: PC (0/2)							}
E 312	E1-3 Do you trace schematic or block diagrams of circuits containing resonant RCL circuits	23	4	21	ю	52		
9600	IIB 10. Parallel RCL Circuits and Resonance 6/2		t f l t					1
5600	IIB loa. Given the schematic diagram of a parallel RC circuit with component values, applied voltage and frequency, and the appropriate formulas; solve for total impedance, total current branch currents and approximate phase angle. At least three of the five required responses must be correct. CTS: 5e Meas: PC (1/0)							1
E 310 E 314 E 315 E 316	E1-1 Do you trace schematic or block diagrams of circuits containing resistive capacitive inductive (RCL) circuits E1-5 Do you calculate values of impedance, voltage, or current in RCL circuits E1-6 Do you calculate phase angle of RCL circuits E1-7 Do you calculate values of power in RCL circuits	34 13 7 10	~ a aa	21 Se	ж « пп	64 30 23 23		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
9600	IIB 10b. Given the schematic diagram of a parallel RL circuit with component values, applied voltage and frequency and the appropriate formulas; solve for total impedance, total current, branch currents and approximate phase angle. At least three of the five required responses must be correct. CTS: 5e Meas: PC (1/0)							1 1
E 310	E1-1 Do you trace schematic or block diagrams of circuits containing resistive capacitive inductive (RCL) circuits	34	٧	56	м	59		
E 314	E1-5 Do you calculate values of impedance, voltage, or current in RCL circuits	13	0	21	۲	30		
E 315 E 316	El-6 Do you calculate phase angle of RCL circuits El-7 Do you calculate values of power in RCL circuits	10	N N	мм		21 23		
2600	IIB 10c. Given a digital multimeter, signal generator, circuit card, and a schematic diagram of a parallel RCL circuits with applied voltage and frequency correctly solve for capacitive reactance and inductive reactance. Response must be within + or - 1k ohms. CTS: 5e Meas: PC	; ; ; ; ; ;					! ! ! !	† ;
	El-1 Do you trace schematic or block diagrams of circuits containing resistive capacitive inductive (RCL) circuits	34	7	56	м	59		
E 314		13	~	21	N	30		
E 315 E 316	E1-6 Do you calculate phase angle of RCL circuits E1-7 Do you calculate values of power in RCL circuits	10	0	мм	A A	23		
8600	IIB 10d. Given a chart specifying parameter changes in a parallel RCL circuit, indicate the effect (increase, decrease, remain the same) on total impedance, total current, and phase angle when the circuit is at, above or below resonance. At least eight of the twelve required responses must be correct. CTS: 5f Meas: PC (0/2]]]
E 312	El-3 Do you trace schematic or block diagrams of circuits containing resonant RCL circuits	23	4	21	м	52		

PRTHOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI PM0013			Occupation USAFOMC (A	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	s Program ph AFB TX	Page	25
D T TSK Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
6600	IIB 10e. Given a list of ten statements, select those statements that correctly describe parallel RCL circuit behavior/characteristics as the circuit approaches resonance, when the circuit is at resonance, or as the circuit departs from resonance. At least four of the six required responses must be correct. CTS: 5f Heas: PC							;
E 312	b1 Hs	23	4	21	м	52		
0100			• • • • • • • • • • • • • • • • •	 	1		 	1
0101	IIB lla. Given a list of ten items (statements, schematics, frequency response curves) pertaining to filters, correctly indicate which item describes low-pass, high-pass, band-pass or band-reject filter operation. At least six of the ten required responses must be correct. CTS: 5a Meas: PC	! ! ! !						!!!!
E 317	E2-1 Do you trace schematic or block diagrams of circuits containing fraquency sensitive filters	•	ю	53	м	30		
E 320 E 322		8 10	1 2	21 50	7 7	33		
E 323	E2-7 Do you perform tasks on high pass frequency sensitive filters	∞	7	35	1	33		
E 324	E2-8 Do you perform tasks on band pass frequency sensitive filters	c 0	0	56	8	33		
E 325	E2-9 Do you perform tasks on band-reject frequency sensitive filters	ю	1	12	8	23		
E 326	E2-10 Do you perform tasks on ferrite bead frequency sensitive filters	8	•	м	0	11		

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D T Tsk Y Mbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0102	IIB llb. Given an oscilloscope, signal generator, trainer console and circuit cards 16A, 16B, 18A, 20A, and 20B, identify the type of filter circuit by observing the output waveform of specified circuits. At least four of the six specified filters must be identified correctly. CTS: 5f Meas: PC							}
E 317		σ	м	53	ю	30		
E 320	containing frequency sensitive fitters E2-4 Do you align or adjust frequency sensitive filters E2-6 Do you perform tasks on low pass	8 10	2 4	21 50	1 2	33		
E 323	reducing sensitive filters E2-7 Do you perform tasks on high pass	80	1	35	-	33		
E 324	frequency sensitive filters E2-8 Do you perform tasks on band pass	80	0	26	2	33		
E 325	frequency sensitive filters E2-9 Do you perform tasks on band-reject	ю	-	12	8	23		
E 326	frequency sensitive filters E2-10 Do you perform tasks on ferrite bead frequency sensitive filters	0	•	м	0	11		
SOLO	IIB lic. Given the schematic diagrams of five filter circuits using resistor elements and a list of the five filter types, match at least three of the five filter circuits with the correct type. CTS: 5a Meas: PC (0/2)						1	
E 317	E2-1 Do you trace schematic or block diagrams of circuits containing frequency sensitive filters	6	м	53	ю	30		
E 320	E2-4 Do you align or adjust frequency sensitive filters E2-6 Do you perform tasks on low pass	10	7 7	21 50	7 7	33.		
E 323	requency sensitive inters E2-7 Do you perform tasks on high pass fractional capetities titles	æ	-	35	1	33		
E 324	E2-8 bo you perform tasks on band pass	æ	8	56	N	33		
E 325	E2-9 Do you perform tasks on band-reject	м	-	12	~	23		
E 326	E2-10 Do you perform tasks on ferrite bead frequency sensitive filters	∾	•	м	•	п		

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0104	IIB 12. Time Constants 6.5/2	,5		 	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			:
5010	IIB 12a. Given five series RC networks with the specified time allowed, component values, and a Universal Time Constant Chart, determine the percent of charge or discharge of the capacitor. At least three of the five given problems must be answered correctly.						/ 	
E 310	block diagrams of	34	7	56	м	5 9		
E 314	containing resistive capacitive inductive (RLL) circuits El-5 Do you calculate values of impedance, voltage, or current in PCI circuits	13	8	21	8	30		
E 315	El-6 Do you calculate phase angle of RCL circuits	4	6	M)	1	21		
9010	IIB 12b. Given five series RL networks with the specified time allowed, component values, and a specified time allowed, component values, and a of current build-up or current decay in the circuit. At least three of the five given problems must be answered correctly. CTS: 5h Meas: PC	9					; ! ! !	
E 310	E1-1 Do you trace schematic or block diagrams of circuits	34		26	м	59		
E 314	Jues of	13	0	21	2	30		
E 315	current in mul circuits El-6 Do you calculate phase angle of RCL circuits	^	8	м	Ħ	21		
0107	IIB 12c. Given four multiple-choice questions, each with four options, dealing with classification of time constants, correctly answer at least three of the four questions. CTS: 5h Meas: PC						; ! ! !	
E 310	E1-1 Do you trace schematic or block diagrams of circuits containing resistive capacitive inductive (RCL) circuits	34	^	56	m	99		

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-	Task Title	306 53	362 51	362 53	362 54	918 50		
IIB THE STA	IIB 12d. Given four multiple-choice questions, each with four options, associated with differentiated and integrated waveforms, correctly answer at least three of the four questions. CTS: 5h Meas: PC (2.5/0)						1 4 1 1	
W T W W W W W W	F3-1 Do you trace block diagrams of circuits containing waveshaping circuits (WSC) F3-2 Do you trace schematic diagrams of WSC F3-5 Do you adjust or calibrate WSC F3-8 Do you perform tasks on RC differentiating WSC F3-9 Do you perform tasks on RL differentiating WSC F3-10 Do you perform tasks on RC integrating WSC	33 22 22 7 10	8 22777	m mm0000	0 27777	6 65 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		
	ELECTRONIC PRINCIPLES Volume 3 of 7 Volumes							
H	III 1. PN Junctions and Diodes 4/0							
0112 III for	III la. Given four multiple-choice questions, with four options each, pertaining to semiconductor materials, correctly answer at least three of the four questions. CTS: 6b(1) Meas: PC							
A3-]	A3-1 Do you trace schematic or block diagrams of circuits containing diodes	98	56	88	64	95		

PRTHOD) Sheppard ITC CETP AFSCs matched to Shepard EP POI PH0013			Occupatio USAFOMC (Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	is Program 1ph AFB TX	Page	59
D T Tsk V Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0113	III lb. Given a trainer, test equipment and a schematic diagram, determine the froward/reverse bias condition of at least three out of four diodes through voltage measuremenst. CTS: 6b(1) Meas: PC	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						•
A 83	A3-1 Do you trace schematic or block diagrams of circuits containing diodes A3-3 Do you check diodes using an ohmmeter	98 84	54 48	88	46	95 92		
0114	III 2. Rectifiers and Filters							:
0115	III 2a. Given a list of ten characteristics and a list of rectifier circuits, match the characteristics to the proper circuits. At least six of the matches must be correct. CTS: 6b(4) Meas: PC) 1 1 1 1	1
D 275	D1-1 Do you trace block diagrams of circuits containing power supplies	89	38	91	45	92		
D 276 D 279	se schematic diagrams of yn or adjust power suppl	88 83	32 26	& & (37	92		
D 281	power supplies D1-7 Do you perform tasks on full-wave rectifier Downer supplies	99	, 71	7 2	2 2	8 87		
D 282	DI-8 Do you perform tasks on full-wave bridge rectifier power supplies	99	6 0	53	10	91		
0116	III 2b. Given three multiple-choice questions, with four options each, pertaining to three-phase rectifiers, correctly answer at least two of the three questions.	 						!
D 275	D1-1 Do you trace block diagrams of circuits containing	89	38	91	45	92		
D 276	DI-2 Do you trace schematic diagrams of power supply circuits	89	32	88	37	95		
D 283	DI-9 Do you perform tasks on three-phase rectifier power supplies	17	13	•	4	50		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50	
0117	III 2c. Given oscilloscope, a trainer and a bridge rectifier circuit card, determine the effects on ripple amplitude by changing values of the resistor/capacitor components. At least three of the four response must be correct. CTS: 6b(4) Meas: PC						† ! !
D 288	D2-1 Do you trace block diagrams of circuits containing	58	9	47	æ	77	
D 289	power supply titlers D2-2 Do you trace schematic diagrams of power supply Although	57	ĸ	47	•	11	
	tasks on	50	m	47	9	75	
D 293	inductive pow	38	M ·	35	4	61	
	D2-8 Do you perform tasks on L-type power supply filters D2-8 Do you perform tasks on Pi-type bower supply filters	23	<i>c</i> 1 <i>c</i>	12	rd r	5 3	
	tasks on T-type power supply	ìĦ	1 0	۰ ۰۵	- 4	92	
D 297	tasks on resistive ca	46	ю	, f	1 37	69	
D 298	power supply filters D2-11 Do you perform tasks on inductive capacitive (LC) power supply filters	37	81	35	м	61	
0118	III 3. Transistor Principles		.! ! ! !		1 1 1 1 1 1 1		
0119	III 3a. Given a list of ten characteristics and a list of ten terms or symbols pertaining to transistor construction, operation, biasing and symbols; correctly match at least six of the characteristics with its term or symbol. CTS: 6b(2) Meas: PC						
8	A3-7 Do you trace schematic or block diagrams of circuits containing transistors	06	4	56	43	63	
0120	III 4. Transistor Amplifiers 8/4	: : : : : : : :		! ! ! ! !			

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0121	III 4a. From a list of ten characteristics, correctly identify at least four of the six that pertain to a common emitter amplifier circuit. CTS: 6b(2) Meas: PC (3/0)							
C 199	CI-1 Do you trace block diagrams of circuits containing transistor amplifiers	41	13	76	6	83		
C 200	C1-2 Do you trace schematic diagrams of transistor amplifiar circuits	41	11	1,1	80	94		
C 204	C1-6 Do you adjust or align transistor amplifiars	16	12	62	8	50		
	of o bo you descuted waters of (Fensis) of emplitter voltage, current or power gain	3	٥	62	8	45		
C 207	C1-9 Do you work on compound-connected (Darlington Pair) transistor amplifiers	20		0	-	7.0		
	Do you work on cascade-co	10	-	9	1	42		
	CI-11 Do you work on paraphase transistor amplifiers	r.	-	• •	. •	20		
	Work on	19	(47	~	20		
C 212	ct to be you work on mideband transistor amplifiers	7 K	2 K	65 *	4 (53		
	work on IF transi	, .	n ⊶	n ka	u 0	23		
C 214	you work on	∞	m	m	1 (1)	6,5		
C 215	CI-17 Do you work on buffer transistor amplifiers CI-18 Do you work on commismantary exametry transfers	15 6	-	9 1	~ <	49		
	or sork on DC transitation	P 6	- 1	n ;	> ,	?		
	ct 17 to you work on be transistor amplifiers (SMICCDINg applications)	8		12	4	29		
0122	III 4b. Given a common emitter amplifier circuit schematic, three trouble symptons and four probable causes, correctly match at least two of the symptoms with its probable cause. CTS: 6b(2) Meas: PC (0/2)			; ; ; ; ; ; ;	\$ \$ \$ 1 1 2 2 5			
C 201	C1-3 Do you troubleshoot to isolate a faulty	41	11	62	9	81		
C 202	transistor amplifier (21-4 Do you troubleshoot transistor amplifiers to circuit	35	€0	55	cı	80		
C 203 C 205	tever computents C1-5 Do you troubleshoot transistor amplifier distortion C1-7 Do you measure transistor amplifier voltage, current.	14 25	90	1.4	000	45		
C 219		<u> </u>	· -	: 5	ı c	; q		
	to circuit level components	1	•	7	•	ţ		
C 227	C3-3 Do you troubleshoot circuits to isolate a faulty coupling circuit	33	0	53	м	89		
C 228	C3-4 Do you troubleshoot coupling circuits to circuit level components	53	N	22	N	70		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0123	III 4c. From a list of ten characteristics, correctly identify at least four of the six that pertain to a common base amplifier circuit. CTS: 6b(2) Meas: PC (3/0)							;
C 199	Cl-1 Do you trace block diagrams of circuits containing	41	13	92	6	83		
C 200	rensize or amplituers CL-2 Do you trace schematic diagrams of transistor amplifiam circuits	4	11	1,	€0	94		
C 204 C 206	C1-6 Do you adjust or align transistor amplifiers C1-8 Do you calculate values of transistor amplifier	16	12 6	65 29	0 N	50 42		
C 207	voltage, current or power gain Cl-9 Do you work on compound-connected (Darlington Pair)	50	~	0	-	20		
	Do you work on cascade-connected tra	10	7	•	1	45		
C 209	Cl-11 Do you work on paraphasa transistor amplifiers Cl-12 Do vou work on push-bull transistor amplifiers	7 و	- -	9 2	۰ ،	20		
	you work on audio transistor ampl	15	1 6	6 5	1 47	53		
	Do you work on	ю	м	m	8	27		
C 213	Cl-15 Do you work on IF transistor amplifiars	. 0 e	~ 1	m i	~ ~	23		
	you work on buffer transis	15	o	n ve	N F	64		
	work on	9	· #4	м	. 0	25		
C 217	CI-19 Do you work on DC transistor amplifiers (switching applications)	28	٧	12	4	29		
0124	III 4d. Given a common collector amplifier circuit card, trainer console, and test equipment, complete at least three of the five items pertaining to circuit characteristics. CTS: 6b(2) Meas: PC		; 1 1 1 1 1 1					;
C 199	C1-1 Do you trace block diagrams of circuits containing	41	13	76	6	83		
C 200	C1-2 Do you contribute a C1-2 Do you contribute a chematic diagrams of transistor	41	11	な	80	48		
C 204	or align trans	16	12	62	8	50		
3	voltage, current or power gain	2	٥	62	N	4		
C 207	C1-9 Do you work on compound-connected (Darlington Pair) transistor amplifiers	20	7	6	-	20		
	Do you work	10	7	•	7	42		
C 209	6	ru i	e ,	9 (0	20		
	Do you work on	12	- 6	47	0 4	70 73		
C 212	Do you work on wideband transistor amplifiers	m	M	m	- 7	27		
	- 116 -							4

C1-15 Do you work on IF transistor amplifiers C1-16 Do you work on IF transistor amplifiers C1-17 Do you work on By transistor amplifiers C1-18 Do you work on buffer transistor amplifiers C1-19 Do you work on complementary symmetry transistor amplifiers C1-19 Do you work on Complementary symmetry transistor amplifiers C1-19 Do you work on DC transistor amplifiers (switching 26 amplifiers C1-19 Do you work on DC transistor amplifiers (switching 26 applications) III 4e. Given six diagrams showing an ohmmeter connected to a good transistor, determine if the meter should indicate a low resistance or a high resistance. Four of the six response must be correct. CTS: 6b(2) A3-8 Do you troubleshoot circuits to isolate a faulty A3-8 Do you troubleshoot circuits to isolate a faulty A3-9 Do you check transistors using an ohmmeter A3-9 Do you troubleshoot the characteristics/statements and a list of ten characteristics/statements and a list of amplifier principle terms, correctly match at least six of the characteristics/statements with the proper term. CTS: 6b(2) Meas: PC C1-1 Do you trace block diagrams of circuits containing transistor amplifiers C1-2 Do you trace schematic diagrams of transistor	362 51 1 3 1 1 7 7	362 53 3 3 8 8 8 8 8 8 8	362 54 2 2 2 1 1 0 4 4	918 50 23 64 64 67 67		
ifiers amplifiers atry transistor ifiers (switching ifiers (switching sistance. Four IS: 6b(2) Color inmeter should sistance. Four IS: 6b(2) Color ifiers (switching sistance. Color ifiers (switching sistance. Color ifiers Sylv Sylv Color ifiers Containing transistor	33 37 7	88 88 85 89	2 2 1 0 0 4 4 4 7	23 64 64 67 67 89		
etry transistor ifiers (switching meter should sistance. Four IS: 6b(2) (0/2) Annueter Soluty ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements correctly ics/statements	33 37 7 11 11 11 11 11 11 11 11 11 11 11 11	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	22 22 16	67 25 89 89		
ifiers (switching meter should sistance. Four IS: 6b(2) (0/2) (0/2) alate a faulty 3/0 (cs/statements pc correctly ics/statements pc correctly	33 33	88 85 85	22 16	92 89		
nmmeter connected meter should sistance. Four TS: 6b(2) closs 6b(2) closs a faulty shmmeter stics/statements stics/statements closs/statements closs/statements cuits containing transistor	33	& & & & & & & & & & & & & & & & & & &	22 16	89		!
olate a faulty ohmmeter ics/statements s, correctly ics/statements PC ius/statements ruits containing transistor	33	& & .	22 16	92		
s, correctly (3/0) cuits containing transistor	33	88	16	68		
3/0 stockstatements s, correctly ics/statements PC (3/0) cuits containing transistor			;		; ; ; ;	
tics/statements s, correctly tcs/statements PC cuits containing transistor				; 		-
uits containing transistor						
transistor	13	76	o	83		
amplifier circuits	11	17	€	58		
Cl-6 Do you adjust or align transistor amplifiers Cl-8 Do you calculate values of transistor amplifier 10	12 6	62 29	88	50 42		
voluge, current or power gain Cl-9 Do you work on compound-connected (Darlington Pair) 20 transistor amplifiers	-	6	Ħ	70		
C1-10 Do you work on cascade-connected transistor amplifiers 10 C1-11 Do you work on paraphase transistor amplifiers 5		9 9	ન 0	42		
transistor amplifiers ssistor amplifiers	н 6	47 74	· ~ «	2 2 2		
work on wideband transistor amplifiers	` m ,	n m 1	; N 1	53 27		
you work on AF transistor amplifiers you work on RF transistor amplifiers 8	- m -	m m ·	0 0	£ 53		

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c 216	C1-18 Do you work on complementary symmetry transistor	•	-	м	0	25		
C 217	amplituers C1-19 Do you work on DC transistor amplifiers (switching	28	2	12	3	29		
C 218	applications) C2-1 Do you frace schematic diagrams of amplifier etabilization virtuite	15	-	54	1	50		
C 220	stabilization circuits C2-3 Do you perform tasks on emitter (swamping) resistor ctabilization amplifiace	18	1	18	1	95		
C 221	C2-4 Do you perform tasks on self-bias stabilization	13	-	18	1	38		
C 222	empticals C2-5 bo you perform tasks on thermistor stabilization	12	1	21	п	45		
C 223	ers you perform tasks on diode :	17	8	5,5	8	65		
C 224	C2-7 Do you perform tasks on double diode stabilization amplifiers	10	-	•	-	59		
C 225		35	7	59	ĸ	69		
C 226	C3-2 Do you trace schematic diagrams of coupling circuits	34	2	53	4	72		
	perform tasks on direct coup	34	8	21	ю	29		
C 230	C3-6 Do you perform tasks on capacitive-resistive coupling	27	N	54	ю	61		
C 231	C3-7 bo you perform tasks on capacitive-inductive coupling	22	2	21	м	57		
C 232	C3-8 Do you perform tasks on transformer coupling circuits	27	2	21	м	59		
0128	III 6. Special Purpose Devices	; ; ; ; ;						
0129	III 6a. Given four multiple-choice questions, each with four options, pertaining to field effect transistors, correctly answer at least three of the four questions. CTS: 6b(3) Meas: PC							
A 98		53	٥	59	14	88		
A 102	containing solid-state special purpose devices A3-20 Do you perform tasks on field effect transistors (FET)	33	8	15	8	83		

PRTHOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI PH0013			Occupation USAFOMC (A	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	s Program ph AFB TX	Раде	35
D 1 1sk	Task Title	306 53	362 51	362 53	362 54	918 50		
0130	III 6b. Given six multiple-choice questions, each with four options, pertaining to special purpose semiconductor devices, correctly answer at least four of the six questions. CTS: 6b(3) Meas: PC							1
86 A	A3-16 Do you trace schematic or block diagrams of circuits containing solid-state special purpose devices	53	6	59	14	88		
	; >	11	7	15	8	45		
	unijunction transistors	35	1	15	6	80		
A 105	A5-25 Do you perform tasks on liquid crystal displays (LCD) A3-25 Do you perform tasks on light emitting displays (LED)	35	9 2	15	eo i	92		
	ams of circuits	36	7 ~	0	5 2	52		
	photosensitive devices J2-5 Do you work on photodiodes	25	7	0	H	4,		
989 ſ	J2-6 Do you work on phototransistors	22	1	0	-	38		
0131	<pre>III 6c. Given four multiple-choice questions, each with four options, pertaining to SCR devices, correctly answer at least three of the four questions. CTS: 6b(3) Meas: PC (0/2)</pre>	f t t t	; ; ; ; ;					† •
A 98	A3-16 Do you trace schematic or block diagrams of circuits	53	6	59	14	88		
A 109	A3-C) Do you perform tasks on silicon controlled rectifiers (crp)	39	8	15	8	85		
A 112	A3-30 Do you perform tasks on silicon controlled switches (SCS)	10	~	o -	1	19		
0132	III 7. Voltage regulators 3.5/0						† 	
0133	III 7a. Given a schematic diagram of a Zener diode voltage regulator and five incomplete statements, correctly complete at least three of the statements on circuit operation. CTS: 6b(5) Meas: PC	; ! ! !					1	
86 A	A3-16 Do you trace schematic or block diagrams of circuits	53	6	29	14	88		
A 104 D 299	A3-22 Do you perform tasks on zener diodes D3-1 Do you trace block diagrams of circuits containing power supply voltage regulators	68 68	σ φ	47 62	14	88 86		

PRTHOD	Sheppard IIC CETP AFSCs matched to Shepard EP POI PH0013			Occupation USAFOMC (/	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	s Program ph AFB TX	Page	36
D T 15k V Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
D 300	D3-2 Do you trace schematic diagrams of power supply	29	5	62	4	87		
D 304	D3-6 Do you perform tasks on zener diode power supply voltage regulators	57	ю	56	ю	83		
0134	III 7b. Given a voltage regulator circuit card, trainer console and an oscilloscope, measure DC output voltages of a voltage regulator circuit when variations in load (currents) occur. CTS: 6b(5) Meas: PC							;
D 299	D3-1 Do you trace block diagrams of circuits containing	89	∞	62	^	98		
D 300	power suppry voicing regulators D3-2 Do you trace schematic diagrams of power supply voltage regulator circuits	29	ĸſ	62	4	87		
D 303	D3-50 you perform tasks on variable resistor power supply voltage requisions.	25	•	50	M	80		
D 305	D3-7 Do you perform tasks on transistor series power supply voltage regulators	94	2	50	2	72		
0135	ELECTRONIC PRINCIPLES Volume 4 of 7 Volumes			1 1 1 1 1 1 1			1	;
0136	IV. Solid State Amplifiers and Oscillators							;
0137	IV 1. Amplifiers 9.5/2			; ; ; ; ; ;			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	}
0138	IV la. Given a trainer console, circuit card and schematic diagram of a two-stage RC coupled amplifier, measure and record operational characteristics (gain/phasing) of the amplifier. CTS: 6b(6)							1
C 199	CI-1 Do you trace block diagrams of circuits containing	41	13	9/	٥	83		
C 200	(1972) amplifiers C1-2 Do you trace schematic diagrams of transistor amplifier circuits	41	11	11	6 0	84		
C 204	CI-6 Do you adjust or align transistor amplifiers	16	12	62	8	50		
	- 120 -						•	4

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D T Tsk Y Nbr	Task Title	30 <i>6</i> 53	362 51	362 53	362 54	918 50		
C 206	Cl-8 Do you calculate values of transistor amplifier	10	9	59	2	45		
C 208 C 211	voltage, current or power gain C1-10 Do you work on cascade-connected transistor amplifiers C1-13 Do you work on audio transistor amplifiers	10	L 6	9	7	42 53		
0139	IV 1b. Given the schematic diagram of a paraphase push-pull amplifier and five incomplete statements describing circuit operation, correctly complete at least three of the statements. CTS: 6b(6) Meas: PC (2/0)							
C 200	C1-2 Do you trace schematic diagrams of transistor	41	11	12	80	84		
C 204 C 206	ampilitier circuits Cl-6 Do you adjust or align transistor amplifiers Cl-8 Do you calculate values of transistor amplifier	16 10	12	62 29	2 0	50 42		
	ige, current or power gain Do you work on cascade-co	10	rd	•	- 4	45		
C 210	Cl-11 Do you work on paraphase transistor amplifiers Cl-12 Do you work on push-pull transistor amplifiers	19 5		9 44	0 0	20 70		
0140	IV Ic. Given a schematic diagram and five multiple choice questions with four options each, describing basic complementary and driver operation, correctly answer at least three of the five questions. CTS: 6b(6) Meas: PC		1 1 1 1 1 1 1				! ! ! ! !	
C 199	CI-1 Do you trace block diagrams of circuits containing transistor amplifiers	41	13	92	6	83		
C 200	Cl-2 Do you trace schematic diagrams of transistor amplifier circuits	41	11	17	80	94		
C 204 C 206	C1-6 bo you adjust or align transistor amplifiers C1-8 bo you calculate values of transistor amplifier	16 10	12 6	62 29	00	50 42		
C 208 C 216	Vollage, current or power gain Cl-10 Do you work on cascade-connected transistor amplifiers Cl-18 Do you work on complementary symmetry transistor amplifiers	10		o n	0	42 25		
0141	IV 1d. Given five multiple choice questions with four options each, and a schematic diagram of a differential amplifier, correctly answer at least three of the five questions on circuit operation.							
C 199	C1-1 Do you trace block diagrams of circuits containing transistor amplifiers - 121 -	41	13	9/	6	89 23		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
C 200	Cl-2 Do you trace schematic diagrams of transistor	41	11	17	60	84		
C 204	CI-6 Do you adjust or align transistor amplifiers CI-8 Do you calculate values of transistor amplifier	16 10	12 6	62 29	0 0	50 42		
C 249	Voltage, current or power gain C5-1 Do you trace block or schematic diagrams of circuits	30	ĸ	59	0	85		
C 252 C 254	Concaining operational amplifiers (op amps) C5-4 Do you adjust op amp bias, offsets, or drift C5-6 Do you use or apply operational amplifiers as differential/comparators	16 15	4 H	12		59 73		
0142	IV le. Given a schematic diagram, schematic symbol, and five multiple choice questions with four options each, describing basic operational amplifier operation, correctly answer at least three of the five questions.							
C 249	C5-1 Do you trace block or schematic diagrams of circuits	30	ĸ	29	N	85		
	C5-3 Do you calculate op amp gain	80	-	12	^	Ľ		
C 252	ffsets, or drift	16	1 (\$7)	12	7 [5.00 1.00		
	colo you use or apply operational amplifiers for general purpose (inverting or non-inverting)	52	ю	18	-	77		
C 254	C5-6 Do you use or apply operational amplifiers as differential/comparators	15	-	0	1	73		
C 255	C5-7 Do you use or apply operational amplifiers for	φ	7	m	1	61		
C 256	C5-8 Do you use or apply operational amplifiers for unity gain amplifier (buffer)	80	a	•	н	89		
0143	IV 2. LC Oscillators 2.5/2							!
0144	IV 2a. Given a trainer console, circuit card and schematic diagram of a series-fed hartley oscillator, determine the operational characteristics (output frequency/phasing) of the oscillator. CTS: 6b(7) Heas: PC							-
F 327	FI-1 Do you trace block diagrams of circuits containing	35	ĸ	99	8	11		
F 328 F 331 F 332	oscillators F1-2 Do you trace schematic diagrams of oscillator circuits F1-5 Do you align or adjust oscillator circuits F1-6 Do the oscillators you work with use LC tank circuits - 122 -	34 36 14	いくち	56 26 26	H 0 H	72 62 57		

PRTHOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI PM0013			Occupatio USAFOMC (onal Analys (ATC) Rando	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Page	39
D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
F 336	F1-10 Do you perform tasks on series Hartley oscillator circuits	11	1	12	1	35		
0145	IV 2b. Given a schematic diagram of a shunt fed hartley, clapp, and colpitts oscillator and a list of oscillator components, select the components that make up the frequency determining device, forward bias network, and the regenerative feedback path of each oscillator. At least seven of the nine responses must be correct CTS: 6b(7) Meas: PC							
F 327	F1-1 Do you trace block diagrams of circuits containing oscillators	35	īΛ	99	8	17		
	Useritators F1-2 Do you trace schematic diagrams of oscillator circuits	34	4	56	٦	72		
	F1-5 Do you align or adjust oscillator circuits	30	~	26	۱ ۵	2.9		
F 332	0	14	8	26	ı -	57		
F 337	FI-11 Do you perform tasks on shunt Hartley oscillator	11	-	12		39		
F 338	circuits F1-12 Do you perform tasks on Colbitts oscillator circuits	۲	-	σ	-	9		
		0 00	. 0	۰ ۵۰	1 A	17		
0146	IV 3. RC Oscillators 4/0							
0147	IV 3a. Given a schematic diagram of a phase shift oscillator and five incomplete statements describing circuit operation, correctly complete at least three of the statements. CTS: 6b(7) Meas: PC (2/0)							!
F 327	FI-1 Do you trace block diagrams of circuits containing oscillators	35	'n	65	8	17		
F 328	F1-2 Do you trace schematic diagrams of oscillator circuits	34	4	56		72		
F 331	F1-5 Do you align or adjust oscillator circuits	30	7	56	8	62		
	Fi-/ Do the oscillators you work with use RC networks Fi-20 Do you perform tasks on RC phase shift oscillators	19	٦ ٧	23	c	63		
) :)	4	1,	>	67		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0148	IV 3b. Given a schematic diagram of a wien bridge oscillator and five incomplete statements describing circuit operation, correctly complete at least three of the statements. CTS: 6b(7) Heas: PC							
F 327	F1-1 Do you trace block diagrams of circuits containing oscillators	35	īά	99	8	נג		
	Fi-2 Do you trace schematic diagrams of oscillator circuits Fi-5 Do you align or adjust oscillator circuits Fi-7 Do the oscillators you work with use RC networks	34 30	4 1 0	56 56 29	H 0 H	72 62 63		
F 342	Fl-16 Do you perform tasks on Wien bridge oscillator circuits	9	7	•	r.	84		
0149	IV 4. Crystal Oscillators		1 1 1 1 1 1 6	, - - - - - - -				;
0150	IV 4a. Given a schematic diagram of a crystal oscillator and five incomplete statements describing circuit operation, correctly complete at least three of the statements. CTS: 6a(1) Meas: PC							-
F 327	FI-1 Do you trace block diagrams of circuits containing oscillators	35	ĸ	9	2	71		
F 328 F 331 F 334 F 341	F1-2 Do you trace schematic diagrams of oscillator circuits F1-5 Do you align or adjust oscillator circuits F1-8 Do the oscillators you work with use crystals F1-15 Do you perform tasks on crystal oscillator circuits	34 32 30	2 L U U	56 56 9	H 2 H H	72 62 68 59		
0151	IV 4b. Given schematic diagrams of a pierce oscillator, crystal controlled hartley oscillator, and a common base amplifier with a crystal oscillator and a list of ten statements/phrases, correctly match at least six of the statements/phrases with the correct schematic diagram. (0/2)							!
F 327	F1-1 Do you trace block diagrams of circuits containing	35	ĸ	9	8	12		
F 328 F 331 F 341	F1-2 Do you trace schematic diagrams of oscillator circuits F1-5 Do you align or adjust oscillator circuits F1-8 Do the oscillators you work with use crystals F1-15 Do you perform tasks on crystal oscillator circuits - 124 -	3 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 1 2 1 1 1	80 80 80 80 80 80 80 80 80 80 80 80 80 8	нонн	72 62 68 59		

PRTHOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI PM0013			Occupational USAFOMC (ATC)	nal Analys ATC) Rando	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Page	41
D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0152	IV 5. Multivibrators (9.5/2)							:
0153	IV 5a. Given a schematic diagram of an astable multivibrator, five incomplete statements concerning circuit operation, and a list of components/networks, correctly complete at least three of the statements using components/networks from the list provided. CTS: 6b(8) Meas: PC							!
C 217	Cl-19 Do you work on DC transistor amplifiers (switching	28	^	12	4	29		
F 347	applications/ F2-1 Do you trace block diagrams of circuits containing multivibrators	44	м	56	2	59		
F 348	F2-2 Do you trace schematic diagrams of multivibrator	45	м	54	1	59		
	circuits F2-5 Do you adjust or align multivibrator circuits	27	ю	23	~	51		
	F2-7 Do the multivibrators you work with use RC networks	32	-	18	-	5,		
F 355	F2-9 Do you perform tasks on astable (free running) multivibrators	41	2	\$	7	58		
F 359	F3-1 Do you trace block diagrams of circuits containing	33	2	м	8	99		
	F3-2 Do you trace schematic diagrams of WSC	33	-	м	1	61		
	F3-5 Do you adjust or calibrate WSC	25	~	M) i	н (58		
F 371	rs-IZ Do you perform tasks on square wave generator WSC F3-13 Do you perform tasks on rectangular wave generator WSC	: : ::		m m	2 4	63 47		
0154	IV 5b. Given a schematic diagram of a monostable multivibrator, five incomplete statements concerning circuit operation, and a list of components/networks, correctly complete at least three of the statements using components/networks from the list provided. CTS: 6b(8) Heas: PC							
C 217	Cl-19 Do you work on DC transistor amplifiers (switching	28	٢	12	4	29		
F 347	applications) F2-1 Do you trace block diagrams of circuits containing	55	ю	56	2	59		
F 348	multivibrators F2-2 Do you trace schematic diagrams of multivibrator	42	ю	24	1	59		
F 351 F 353	circuits F2-5 Do you adjust or align multivibrator circuits F2-7 Do the multivibrators you work with use RC networks	27 32	ь ц	21 18		51 54		

PRIMOD	Sheppard TIC CETP AFSCs matched to Shepard EP POI PM0013			Occupation USAFOMC (/	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	is Program Iph AFB TX	Page	45
D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
F 356	F2-10 Do you perform tasks on monostable (one shot)	41	N	54	,	57		
F 359	F3-1 Do you trace block diagrams of circuits containing waveshaping circuits (MCC)	33	~	м	8	9		
F 360 F 363	F3-2 Do you trace schematic diagrams of WSC F3-5 Do you addust or calibrate WSC	33	4.	M W	٦,	19		
F 370 F 371		ដឧដ		กหห	- 2 -	58 63 47		
0155	IV 5c. Given a schematic diagram of a schmitt trigger circuit and five imcomplete statements concerning circuit operation, correctly complete at least three of the statements. CTS: 6a(3) Meas: PC (0/2)						1	;
C 217	Cl-19 Do you work on DC transistor amplifiers (switching	28	۲	12	æ	29		
F 359	F3-1 bo you trace block diagrams of circuits containing	33	۲۵	м	8	65		
	mayeanaping circuits (mac.) F3-2 Do you trace schematic diagrams of WSC	33	-	M	-	. 7		
F 363	F3-5 Do you adjust or calibrate WSC	55	·	m	٠,	58		
	TO-IC DO you perform tasks on square wave generator WSC F3-I3 Do you perform tasks on rectangular wave generator WSC F3-I4 Do you perform tasks on cohmitt internet use	ដដ		n n	27,	63		
1		?	٠,	٥	-	4		
0156	IV 5d. Given a trainer console, circuit card and schematic diagram of a bistable multivibrator, measure and record the operational characteristics (output voltage levels/state of flip flops) of the multivibrator. CTS: 6b8 Meas: PC			1 1 1 4 4 6 7 1 1	1 1 1 1 1 1 1 1	1 1 1 1 1 4 4 6 7 1		!
C 217	C1-19 Do you work on DC transistor amplifiers (switching applications)	28	~	12	\$	29		
F 347	F2-1 Do you trace block diagrams of circuits containing multivibrators	55	м	56	8	59		
F 348	F2-2 Do you trace schematic diagrams of multivibrator circuits	45	м	24	-	59		
F 351	F2-5 Do you adjust or align multivibrator circuits	27	м	27	1	51		
	12. To the multividators you work with use KC networks 72-11 Do you perform tasks on bistable (flip flop)	32 46	٦ ٧	18 29		58 58		
F 359	F3-1 bo you trace block diagrams of circuits containing	33	8	м	8	65		
F 360	F3-2 Do you trace schematic diagrams of WSC	33	~	m	7	61		
	13-5 Do you adjust or calibrate MSC F3-12 Do you perform tasks on square wave generator wor	22 12	~ -	M 14	٦,	89		
	٤.	: 1	-	n m	N 14	63 47		
•	- 126 -							_

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0157	ELECTRONIC PRINCIPLES Volume 5 of 7 Volumes				 			
0158	V. Solid State Waveshaping Circuits and Soldering			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1) 			!
0159	V 1. Pulsed and Blocking Oscillators				(
0160	V la. Given the schematic diagrams of four pulsed oscillators and a list of input gates/output waveforms, correctly match at least three of the input gates/output waveforms with the correct oscillator. CTS: 6a(2) Heas: PC							
F 327	F1-1 Do you trace block diagrams of circuits containing oscillators	35	ĸ	9	8	12		
F 328 F 331	F1-2 Do you trace schematic diagrams of oscillator circuits F1-5 Do you align or adjust oscillator circuits	36	4 6	56 56	п с	72		
F 332	, 3 č	14 16	- N M	56 50 50 50	N A A	57 43		
0161	V 1b. Given six multiple choice questions, with four options each, concerning blocking oscillator operation, correctly answer at least four of the questions. CTS: 6b(9) Meas: PC (2/0)				; ; ; ; ; ;			
F 327	F1-1 Do you trace block diagrams of circuits containing oscillators	35	ĸ	65	8	17		
F 328 F 331 F 344	F1-2 Do you trace schematic diagrams of oscillator circuits F1-5 Do you align or adjust oscillator circuits F1-6 Do the oscillators you work with use LC tank circuits F1-18 Do you perform tasks on blocked/blocking oscillator circuits	34 30 14 3	4 ~ 0 0	26 26 0	1121	72 62 57 20		

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D T Tsk	Task Title	306 53	362 51	362 53	362 54	918 50		
0162	V lc. Given three multiple choice questions with four options each, circuit schematic diagram and input, base and output waveforms for a triggered blocking oscillator, correctly answer at least two of the questions. CTS: 6b(9) Meas: PC (0/1)	-	1 1 1 1 4 4 1		, 			;
F 327 F 328 F 331 F 332	F1-1 Do you trace block diagrams of circuits containing oscillators F1-2 Do you trace schematic diagrams of oscillator circuits F1-5 Do you align or adjust oscillator circuits F1-6 Do the oscillators you work with use LC tank circuits F1-18 Do you perform tasks on blocked/blocking oscillator circuits	35 36 36 3	N 4700	6 0 0 0 0	1121 2	71 72 62 5 7 20		
0163	V 1d. Given a schematic diagram of a free-running blocking oscillator and the symptoms of three malfunctions, write the correct cause of the malfunction in the space provided. CTS: 6b(9) Meas: PC (0/1)							1
F 329 F 330 F 332 F 344	F1-3 Do you troubleshoot to isolate a faulty oscillator circuit F1-4 Do you troubleshoot oscillators to circuit level components F1-6 Do the oscillators you work with use LC tank circuits F1-18 Do you perform tasks on blocked/blocking oscillator circuits	33 33 34 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	r 0 00	62 18 26 0		70 68 57 20		
0164	V 2. Sawtooth and Trapezoidal Generators 5/0	1 6 1 1 6 6						!
0165	V 2a. Given an oscilloscope, trainer console, signal generator, and circuit card, determine the effect on linearity when component size and/or input frequency is changed. CTS: 6b(9) Meas: PC							:
A 103 F 359 F 360	A3-16 Do you trace schematic or block diagrams of circuits containing solid-state special purpose devices A3-21 Do you perform tasks on unijunction transistors (UJT) F3-1 Do you trace block diagrams of circuits containing waveshaping circuits (WSC) F3-2 Do you trace schematic diagrams of WSC	53 33 33	6 H N H	29 3 3	14 2 2 1	88 88 65 64 65 64 64 64 64 64 64 64 64 64 64 64 64 64	•	
	- 821 -							

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
F 363 F 364	F3-5 Do you adjust or calibrate WSC F3-6 Do you perform tasks on sawtooth wave generator WSC	22 26		мм	пп	58 58		
0166	V 2b. Given three multiple choice questions, with four options each, concerning trapezoidal wave generators, correctly answer at least two of the questions. CTS: 6b(9) Meas: PC (1/0)		; ; ; ; ;					1 1
F 359	F3-1 Do you trace block diagrams of circuits containing	33	8	м	~	99		
	F3-2 Do you trace schematic diagrams of WSC F3-5 Do you adjust or calibrate WSC	33	~ ~	мм		61 58		
F 365	F3-7 Do you perform tasks on trapazoidal (ramp) wave generator WSC	14	п	m	-	55		
0167	V 3. Limiters and Clampers 9/2		; ! ! ! !					:
0168	V 3a. Given the schematic diagrams of the series, shunt, biased shunt, and double diode limiters, and a list of limiter output waveforms, correctly match the waveform to the schematic diagram. At least five of the nine matches must be correct. CTS: 6b(10) Meas: PC (3/0)	f 						-
F 373	F4-1 Do you trace block diagrams of circuits containing	20	7	21	H	56		
F 374 F 381	F4-2 Do you trace schematic diagrams of limiter circuits F4-9 Do you perform tasks on series diade limiter circuits	20	000	15	, r	58		
	hunt ias 1	126	1 (N (N	9 6	4 4 4	44 47 30		
0169	V 3b. Given five load line graphs and five circuit schematic diagrams, plot a load line for each circuit. At least three of the load lines must be plotted correctly. CTS: 6b(10) Meas: PC (0/2)		, ! ! ! !					}
A 93	A3-11 Do you use transistor characteristic curves	20	4	15	м	37		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0170	V 3c. Given the schematic diagrams, input waveforms, output waveforms, and a list of the transistor limiter circuit names, correctly match the circuit name to the proper schematic diagram. At least four of the six matches must be correct. CTS: 6b(10) Meas: PC (2/0)		 1 1 1 1 1				4 1 1 1 1 1	}
F 373 F 374 F 385	F4-1 Do you trace block diagrams of circuits containing limiters F4-2 Do you trace schematic diagrams of limiter circuits F4-13 Do you perform tasks on transistor limiter circuits	20 20 11	1 5 1	21 15 9	н нн	56 58 46		
0171	V 3d. Given an oscilloscope, trainer console, circuit card and a list of clamper circuit terms, determine the types of clamper circuits by observing the output waveforms. At least four of the six responses must be correct.							!
F 375 F 376 F 387 F 388	F4-3 Do you trace block diagrams of circuits containing clampers F4-4 Do you trace schematic diagrams of clamper circuits F4-15 Do you perform tasks on diode clamper circuits F4-16 Do you perform tasks on bias clamper circuits	15 14 11 5	0 0 1 1	12 12 9	ਜ ਜਜਜ	48 41 25		
0172	V 4. Soldering Techniques							;
0173	V 4a. Given a list of 14 statements pertaining to soldering procedures and a list of 14 items (tools, materials, type of solder, flux, and characteristics of a properly soldered connection), correctly match at least nine of the statements with the proper items. CTS: 7a Meas: PC							
A 141 A 142	A5-1 Do you solder or desolder hardwire connections A5-2 Do you solder or desolder component connections such as resistors, capacitors, diodes, transformers, etc	95	88 99	97 91	86 35	5 6		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0174	V 4b. Given tools and materials, correctly solder at least three of the four connections to bifurcated and turnet terminals. CTS: 7a Meas: PC				; ; ; !			
A 141 A 142	A5-1 Do you solder or desolder hardwire connections A5-2 Do you solder or desolder component connections such as resistors, capacitors, diodes, transformers, etc	95	88 99	97	86 35	46		
0175	V 4c. Given the tools and materials, correctly desolder at least three of the four bifurcated and turnet terminal connections. CTS: 7a Meas: PC							:
A 141 A 142	A5-1 Do you solder or desolder hardwire connections A5-2 Do you solder or desolder component connections such as resistors, capacitors, diodes, transformers, etc	95	88 99	97	86 35	4 4		
0176	V 4d. Given four multiple choice questions, with four options each, pertaining to soldering on printed circuit boards, correctly answer at least three of the questions. CTS: 7b Meas: PC							}
A 143	A5-3 Do you solder or desolder printed circuit board connections	85	44	\$2	19	6 0		
0177	V 4e. Given tools and materials, solder at least 20 of the 23 circuit board connections. CTS: 7b Meas: PC (2/0)		i i i i i	! ! ! !				
A 143	A5-3 Do you solder or desolder printed circuit board connections	85	55	5 2	19	68		
0178	V 4f. Given tools and materials, correctly desolder a resistor from a circuit board. CTS: 7b Meas: PC (1.5/0)							
A 143	A5-3 Do you solder or desolder printed circuit board connections	85	44	52	19	89		

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0179	ELECTRONIC PRINCIPLES Volume 6 of 7 Volumes				; ; ; ; ; ; ; ;			!
0180	VI. Digital Techniques		 	 				1 1 1
0181	VI 1. Numbering Systems	N.					 	;
0182	VI la. Given 36 problems, correctly convert at least two out of the three whole numbers from decimal, binary, octal, and hexadecimal to their equivalent in each of the other numbering systems. CTS: 8a (2/0)							;
	G1-1 Do you convert decimal numbers to binary numbers or binary numbers to decimal	45	23	•	8	39		
G 391	G1-2 Do you convert octal numbers to binary or binary numbers to octal G1-3 Do you convert hexadecimal numbers to binary or	30	13	о м	п п	33		
6 392	Dinary numbers to nexadecimal G1-4 Do you convert octal numbers to decimal or decimal numbers to octal	27	13	0	-	33		
6 393	G1-5 Do you convert hexadecimal numbers to decimal or decimal numbers to hexadecimal G1-6 Do you convert octal numbers to hexadecimal or hexadecimal numbers to octal	29	16 11	6 0		29		
0183	VI 1b. Solve at least three of five given binary addition problems. CTS: 8a Meas: PC (1/0)							}
962 9	G1-8 Do you add binary numbers	0 7	19	м	м	39		

PRTHOD	Sheppard ITC CEIP AFSCs matched to Shepard EP POI	PM0013			Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	al Analysi TC) Randol	s Program ph AFB TX	Page	64
D T Tsk Y Nbr	Task Title		306 53	362 51	362 53	362 54	918 50		
0184	VI lc. Solve at least three of five given binary subtraction problems. CTS: 8a Meas: PC	(1/0)			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1	•
6 397	o you subtract bin		35	17	0	m	39		
0185	VI 1d. Solve at least three of five given octal addition problems. CTS: 8a Meas: PC	(1/0)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			 1		!
	Do you add octa		54	6	0	~	32		
0186	VI le. Solve at least three of five given octal subtraction problems. CTS: 8a Meas: PC	(1/0)					 		<u> </u>
6 401	61-13 Do you subtract octal numbers		23	•	0	~	31		
0187	VI 1f. Solve at least three of five given binary multiplication problems. CTS: 8a Meas: PC	(0/1)	 		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1	1	:
6 398	o you multiply binary	•	54	12	0	m	31		
018	VI 1g. Solve at least three of five given binary division problems. CTS: 8a Meas: PC	(0/1)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	! ! ! ! !	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		i ! ! !	:
399	G1-11 Do you		54	10	0	м	30		
0189	VI 2. Logic Functions and Boolean Equations	8/2		 	1 1 1 1 1 1	1			1
0100	VI 2a. Given a schematic diagram and/or logic symbol of a diode AND, OR, and EXCLUSIVE OR gate, construct a two input truth table for each gate. CTS: 8b	(5/0)							!
6 412	G1-24 Do you trace data flow through logic symbol diagrams	ams 177 -	59	9	15	8	70		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
6 413	G1-25 Do you trace data flow through logic schematic diagrams	09	9	12	0	ג		
6 417	G1-29 Do you trace data flow through circuits using positive logic (High = Binary 1)	52	•	12	1	69		
6 418	G1-30 Do you trace data flow through circuits using negative logic (High = Binary 0)	55	4	12	ı	51		
6 419	ated	59	10	32	2	80		
6 421	61-32 Do you perform tasks related to OR gates G1-33 Do you perform tasks related to inhibited gates	59 46	01 6	32	N H	80 64		
6 422	ated to	28	10	59	8	80		
202	city no you perform tasks related to inverters	65	ru	18	н	72		
0191	VI 2b. Given the diagrams of NPN and PNP, series and parallel, direct coupled transistor logic circuits, construct a truth table for each circuit.	! ! ! !	; ; ; ; ;				; ; ; ; ;	† •
6 413	61-25 Do you trace data flow through logic schematic diagrams	09	٠	12	N	ĸ		
0192	VI 2c. Given a schematic diagram of a current mode logic circuit, complete a truth table. At least 12 of the 16 responses must be correct. CTS: 8b Meas: PC (.5/0)				1 1 1 1 1 1 1			: : :
6 441	G1-53 Do you perform tasks on ECL/CML (emitter coupled or current mode logic)	13	1	•		20		
26 TO	VI 2d. Given three logic diagrams, develop the Boolean equation (consisting of three to six gates) for each. At least two of the equations must be correct. CTS: 8c Meas: PC						1 1 1 1	1 1
6 435	G1-47 Do you develop Boolean equations from logic circuits or diagrams	17	ю	0	Ħ	17		

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0194	VI 2e. Given three Boolean equations, develop the logic diagrams (consisting of three to six gates) for each. At least two of the diagrams must be correct. CTS: 8c Meas: PC							
6 436	Gl-48 Do you develop logic diagrams from Boolean equations	14	м	0	1	17		
0195	VI 3. Logic Circuits 6/2							;
0196	VI 3a. Given the logic diagram of a seriel half adder and a serial full adder and selected input conditions, determine the SUM and CARRY outputs for each input condition. At least five of the eight responses must be correct. CTS: 8d Meas: PC							}
G 503 G 513	G3-16 Do you trace data flow through combinational logic circuits G3-26 Do you perform tasks on adders	24 16	ra 6	. .	7 5	30		
0197	VI 3b. Given the logic diagram of a four bit parallel adder with a selected input, determine the SUM and CARRY outputs. At least three of the five responses must be correct. CTS: 8d Meas: PC						 	;
G 503 G 513	G3-16 Do you trace data flow through combinational logic circuits G3-26 Do you perform tasks on adders	24 16	un ∾	o o	7 7	30		
0198	VI 3c. Given the logic diagram of a J-K flip-flop circuit, construct a truth table. CTS: 8d Meas: PC (0/2)			1 1 1 2 1 1 1				:
6 427	Gl-39 Do you perform tasks related to JK flip flops	94	ĸ	٠	8	58		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0199	VI 3d. Given the schematic diagrams of the astable, monostable, and bistable multivibrators and Schmitt trigger and a list of statements describing their application in digital circuits, match at least three of the four circuits with its application. CTS: 8d Meas: PC (2/0)							!
6 413 6 433	G1-25 Do you trace data flow through logic schematic diagrams G1-45 Do you perform tasks related to complemented flip	09 8	vo m	12	2 -	7.1		
	flops G1-46 Do you perform tasks related to complementing flip flops	29	м	ю		6 0		
0500	VI 4. Counters and Registers 7.5/2						; { ! !	
0201	VI 4a. Given the logic diagram of a four-stage serial up-counter or down-counter having complementing flip-flops, write the binary count in the counter after a clear or set pulse and a given number of clock pulses have passed. At least three of four conditions must be answered correctly. CTS: 8d. Meas: PC	 						
6 412 6 434	G1-24 Do you trace data flow through logic symbol diagrams G1-46 Do you perform tasks related to complementing flip flops	59 29	9 m	15 3	7	70		
6 488	63-1 Do you trace data flow through circuits containing counters	40	īΩ	•	1	43		
6 491 6 492	63-4 Do you perform tasks on UP counters in logic circuits 63-5 Do you perform tasks on DOWN counters in logic	35 34		мм	00	30 27		
265 9	G3-10 Do you perform tasks on asynchronous (serial) counters in logic circuits	59	8	ю	1	22		

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0202	VI 4b. Given the logic diagram of a four-stage serial up-counter and down-counter having complemented flip-flops, determine the state of the flip-flops after a clear or set pulse is applied and a given number of clock pulses have passed. At least five of the eight flip-flops must be labeled correctly. CTS: 8d (1.5/0)	 						;
6 412 6 433 6 488	G1-24 Do you trace data flow through logic symbol diagramsG1-45 Do you perform tasks related to complemented flip flopsG3-1 Do you trace data flow through circuits containing	59 28 40	ט מפי	15 3 6	84 -	70 40		
G 491 G 492	counters 63-4 Do you perform tasks on UP counters in logic circuits 63-5 Do you perform tasks on DOWN counters in logic	35 34		м м		30 27		
6 496	circuits 63-9 Do you perform tasks on synchronous (parallel) counters in logic circuits 63-10 Do you perform tasks on asynchronous (serial) counters in logic circuits	29	ю о	o m	e	22 23		
0203	VI 4c. Given the logic diagram of a four-stage ring counter, write the state of each flip-flop after a clear pulse and a given number of input pulse have passed. At least three of the four flip-flops must be labeled correctly. CTS: 8d Meas: PC							:
G 412 G 488 G 494	G1-24 Do you trace data flow through logic symbol diagrams G3-1 Do you trace data flow through circuits containing counters G3-7 Do you perform tasks on ring counters in logic circuits	59 40 16	9 10 H	15 6 0	0 11/3	70 43 8		
0204	VI 4d. Given the logic diagram of a decade counter, determine the state (Hi/Lo) of the flip-flops after a clear pulse and a selected number of trigger pulses are applied. At least three of the four responses must be correct. CIS: 8d Meas: PC							į
G 412 G 488	G1-24 Do you trace data flow through logic symbol diagrams G3-1 Do you trace data flow through circuits containing counters	59	9 19	15	2 1	70		

PRTMOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI PM0013			Occupatio USAFOMC (nal Analys ATC) Rando	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Page	54
7 Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
6 493	G3-6 Do you perform tasks on DECADE counters in logic circuits	16	•	9	п	34		
0205	VI 4e. Given the logic diagram of a count detect circuit, determine the state of the flip-flops when a specific count is reached. At least two of the three problems must be answered correctly. CTS: 8d Meas: PC (1.5/0)							
6 503	G3-16 Do you trace data flow through combinational logic circuits	24	ស	•	7	30		
6 515	63-28 Do you perform tasks on count detect circuits	12	п	м	Ħ	15		
0200	VI 4f. Given the logic diagram of a serial up-counter, containing a specified count, feeding a parallel storage register, write the binary count stored in the storage register after a read-in pulse has passed. At least two of the three problems must be answered correctly. CTS: 8d Meas: PC							
867 9	63-11 Do you trace logic diagrams of circuits containing registers	31	м	•	7	22		
6 502	ou perform taska circuits	32	0	м	8	23		
0207	VI 49. Given the logic diagram of a three-stage shift register containing a specified count, write the state of each flip-flop after a specified number of shift pulses have passed. At least two of the three problems must be answered correctly. CTS: 8d Meas: PC							1
865 9	63-11 Do you trace logic diagrams of circuits containing registers	31	ю	•	1	22		
6 501	63-14 Do you perform tasks on shift registers in logic circuits	35	0	•	81	56		
0208	ELECTRONIC PRINCIPLES Volume 7 of 7 Volumes		 	; ; ; ; ;				;

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0209	VII. Integrated Circuits/Devices						1	;
0210	VII 1. Introduction to Integrated Circuits 3.5/0			1 1 1 1 1 1 1 1				
0211	VII la. From a list of ten characteristics, select those that apply to integrated circuits. CTS: 9a Meas: PC (2/0)	1 1 1 1 1 1						-
A 95	A3-13 Do you trace schematic or block diagrams of circuits containing integrated circuits (IC)	8 0	15	50	20	92		
6 438	. =	54	8	•	1	40		
0 440	G1-51 Do you perform tasks on DTL (diode transistor logic) G1-52 Do you perform tasks on TTL (transistor transistor	28 38	чĸ	0 9	44	41 61		
6 441	TUBLE) GI-53 you perform tasks on ECL/CML (emitter coupled or current mode locic)	13	ı	0	1	20		
6 442	61-54 Do you perform tasks on HTL (high threshold logic) 61-55 Do you perform tasks on CMOS (complementary metal	58 7 8	r r	0 м		18 52		
6 444 6 444 6 445	Oxide semiconductor, G1-56 Do you perform tasks on positive MOS ICs G1-57 Do you perform tasks on negative MOS ICs G1-58 Do you perform tasks on vertical MOS ICs	11	00-	000		23		
0212	atements, sele							1
0213	VII 2. Computer Related Logic Circuit 7/2	1					1	-

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D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
0214	VII 2a. From a list of ten statements, choose those describing computer related logic circuits. CTS: 9a	6 1 1 1 1 1		 				
	2	59	•	15	8	7.0		
6 424 6 424		32	יטו	12	п.	52		
	Do you perform	55 76	ın d	σ 0		95		
	63-16 Do you trace data flow through combinational logic	26	ר ויח	0	- 0	30		
6 506	CIFCUITS 63-19 Do vou perform tacke on enrodem	,	t	•	(;		
6 507	63-20 Do you perform tasks on decoders	3 2	υπ	>	<i>.</i> .	27		
	63-21 Do you perform tasks on multiplexers	18	n 0	. 0	, r	30		
	G3-22 Do you perform tasks on demultiplexers	14	ស	0	1	57		
6 516	you trace data flow through A/D	55	9	•	8	45		
6 51/	64-2 Do you trace data flow through D/A converters	21	•	0	7	45		
	STCCESSIVE BDDTOXIED(IO CONVERSION	n	N	0	H	11		
6 523	64-8 Do the converters you perform tasks on use	-	•	0	•	•		
	KZK CONVETSION							
0215	VII 2b. From a list of ten characteristics/symbols, select those that apply to computer related logic circuits. CTS: 9a Meas: PC						! ! ! !	!
	61-24 Do you trace data flow through logic symbol diagrams	59	9	15	8	70		
	GI-36 Do you perform tasks related to RS flip flops	32	ĸ	12	1	52		
6 425	GI-37 Do you perform tasks related to D(Data) flip flops	33	ιΩ	6	٦	95		
9 4 50	ol-30 Up you perform tasks related to T(Toggle) flip flops	36	J	6	7	48		
	63-Io Do you trace data flow through combinational logic circuits	5	2	0	8	30		
	63-19 Do you perform tasks on encoders	23	и	c	c	,		
	63-20 Do you perform tasks on decoders	23.5	'n	• •	4 0	28		
	G3-21 Do you perform tasks on multiplexers	18	•	•	۱ ۲۰۰	3 6		
	G3-22 Do you perform tasks on demultiplexers	14	ĸ	•	ı ન	5, 5		
	64-1 Do you trace data flow through A/D converters	22	9	0	8	45		
6 517	64-2 Do you trace data flow through D/A converters	12	9	0	8	45		
	64-5 DO THE CONVENTER'S YOU PERTONN TESKS ON USE RUCCERSIVE BEDEROXIMATION CONVENTSION	m	Ø	0	7	11		
6 523	64-8 Do the converters you perform tasks on use	-	•	0	0	٠		
	KZK conversion							

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0216	VII 2c. Given a logic trainer, logic diagram, and necessary supporting data, construct a selected, operable computer related logic circuit. CTS: 9a							
6 412 6 424 6 503 6 508	G1-24 Do you trace data flow through logic symbol diagrams G1-36 Do you perform tasks related to RS flip flops G3-16 Do you trace data flow through combinational logic circuits	32 24 18	១៧៧ ៤	15 12 0	010 1	70 52 30 30		
0217	VII 3. Introduction to Computers 3/2	1)
0218	VII 3a. Given a list of ten computers related terms and a list of definitions, match each term with its proper definitions. CTS: 9b Meas: PC		 	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	 	1 1 4 1 1 1 1 1 1 1		1
6 447	G2-1 Do you trace block or schematic diagrams of computer controlled or computer based systems G2-9 Do you perform tasks on digital computers	41	34	18	d W	25		
0219	VII 3b. Given a list of the five basic digital computer units and a list of functions, match each computer unit with its function. CTS: 9b Meas: PC	1 6 8 4 1 1		1 1 1 1 1 1				1
	ou trace block or schematic di led or computer based systems ou perform tasks on digital co you perform tasks on computer	41 45 65	14 34 37	18 21 32	er meo	25 26 26		
G 471 G 472 G 474	G2-25 Do you perform tasks on computer character printers G2-26 Do you perform tasks on magnetic tape drives G2-28 Do you perform tasks on video display unit (VDU/ monitors)	62 57 58	28 37 28	80 9 9	• M •	24 11 15		
6 475 6 476 6 479 6 480 6 481	G2-29 Do you perform tasks on paper tape readers/punches G2-30 Do you perform tasks on paper card readers/punches G2-33 Do you perform tasks on modems G2-34 Do you perform tasks on line printers G2-35 Do you perform tasks on floppy disc drives G2-37 Do you perform tasks on removable pack disc drives	53 40 42 51 35 25	26 22 19 19	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	21112	8 9 1 1 1 0 6 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

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587 D	G2-38 Do you perform tasks on fixed winchester type disc drives	•	17	6	ъĄ	10		
0220	VII 4. Microprocessors 4.5/2				 			1
0221	VII 4m. Given m list of microprocessor sections and m list of their functions, match the microprocessor sections with their respective function. CTS: 9c(1) Mems: PC (4.5/0)		1 3 1 1 1 1 1 1	; ; ; ; ; ; ;				!
6 485	G2-39 Do you trace block or schematic diagrams of microprocessor controlled systems	92	ιή	12	N	41		
0222	VII 4b. From a list of ten statements, correctly identify those that apply to microprocessor operating principles. CTS: 9c(1) Meas: PC		! ! ! ! ! !					!
6 485	G2-39 Do you trace block or schematic diagrams of microprocessor controlled systems	36	ĸ	12	N	14		
im	VII 5. Computer Memorie		; ; ; ; ;					1
0224	VII 5a. Given a list of magnetic storage devices and a list of characteristics, match the characteristics with the correct storage device. CTS: 9b Meas: PC (1.5/0)							!
995 9	±	56	96 66	18	7	17		
0225	VII 5b. Given a list of memory device characteristics, correctly select at least eight of ten that apply to semiconductor memory devices. CTS: 9b Meas: PC (1.5/0)	! ! ! ! ! !	; ; ; ; ;	f 	f 1 1 1 1 1 1 1			:
295 9	G2-21 Do you perform tasks on semiconductor (RAM, ROM, EPROM, PROM) computer memories	45	22	6	9	20		

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0226	 VII 5c. Given a formula and selected memory dimensions, calculate the total storage capacity of a semiconductor memory device. CTS: 9b Meas: PC 							;
6 467	62-21 Do you perform tasks on semiconductor (RAM, ROM, EPROM, PROM) computer memories	45	22	6	•	20		
0227	/ VII 6. Microcomputer Fundamentals 6.5/0	 			\$ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			;
0228	VII 6a. From a list of ten statements, correctly identify those that apply to microcomputer operating characteristics. CTS: 9b Meas: PC							;
6 447	G2-1 Do you trace block or schematic diagrams of computer controlled or computer based systems	41	14	18	4	25		
855 9	G2-2 Do you load programs	27	58	21	60	17		
6 453	62-7 Do you use computer flow charts	35	17	12	м	16		
		4 t	\$\$ F	21	m ı	25		
6 457	G2-11 Do you use COBOL computer	9 10	<u>+</u> -	n o	ብ ሌ	11		
	62-12 Do you use	ю	-	m	I #4	4		
795 995 9	62-16 Do you use Massal computer language 62-18 Do you use Machine computer language	1 9	01 ru	• •	H 2	4 ru		
	Tasks not referenced		; ; ; ; ; ;	; ; ; ; ;				į
A 17	Al-17 Do you adjust relays	38	69	89	45	17		
		2	7	89	94	93		
A 21		58	20	99	∞	80		
A 26	All-26 Do you ohm check inductors	54	19	62	L.	74		
A 34		20	10	21	^	53		
A 42	•	31	6	26	ĸ	89		
A 43	⋖	28	•	54	2	58		
44 A	incee phase transformer A1-44 Do you adjust three phase transformers	17	Ŋ	18	ю	39		
	27.				•	`		

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# Z ∩ ⊢ ≻	T sk	Task Title	306 53	362 51	362 53	362 54	918 50
~	46	A2-2 Do you troubleshoot circuits to isolate a faulty DC motor	02	17	•	11	06
< <	47 50	A2-3 Do you troubleshoot DC motor component parts A2-6 Do you troubleshoot circuits to isolate a faulty AC	51 81	11	мm	10	78 89
	51	shoot AC motor component parts	に	9	0	8	81
	54 55	A2-10 Do you troubleshoot to isolate a faulty DC generator A2-11 Do you troubleshoot DC generator component parts	11 6	12 6	φm	N N	36 30
⋖	58	troubleshoot circuits to isolate a f	9	7	12	4	34
« «	59	A2-15 Do you troubleshoot AC generator component parts A2-17 Do you trace schematic or block diagrams of circuits	4 1	40	0 M	7 1	27
<	62	containing alternators A2-18 Do you troubleshoot circuits to isolate a faulty	7	•	ю	7	€0
	63	atternator A2-19 Do you troubleshoot alternator component parts	4	0	•	1	æ
< <	99	Componer	4 (۰,	0 0	٦.	80 2
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	cards to	•		(ı	,
H 610 H 611	M4-50 Do you align or adjust FM recelvers or circuits H4-51 Do you plot receiver signal level curves (RSL)	-	- -	00		00
		,	I		I	Þ
H 612	H4-52 Do you use "PPM" modulation principles	~ -	ω,	0	٦,	0 0
	Do you trac	•	, ,			• •
H 615	subassemblies or circuit cards H4-55 Do you trace schematic diagrams of PM trans-	н	1	•	-	-
919 H	lies or circuit cards	-	-	c	-	c
	חל "20 טס ליטב נרטעטבפטוטטני הוו נרפוואווינים איני וופטטן בויניא	4	4	>	- 1	>

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Sheppard

PRTHOD	Sheppard IIC CETP AFSCs matched to Shepard EP POI PM0013			Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	al Analysi TC) Randol	s Program ph AFB TX
D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50
Н 617	H4-57 Do you troubleshoot PM transmitters to sub-	0	8	0	7	0
Н 618	oleshoot PM	0	1	0	-	•
Н 619	or circuit cards to circuit level components H4-59 Do vou alian or adiust PH transmitters or circuits	0	ri	0	1	0
H 620	H4-60 Do you calculate pulse recurrence time (PRT)	. 0				
Н 621	or pulse recurrence frequency (PRF) for PM transmitters H4-61 Do vou measure PRT. PRF or bulse width	•	-	•	_	-
	for PM transmitters	•	•	•	•	1
	d esn	٠,	M	0	Н,	7
H 623	H4-63 Do you trace block diagrams of PM receivers H4-64 Do you trace block diagrams of PM receiver		0 -	o c	- -	
	circuit cards	• ,	1 1	•	4 1	4 1
Н 625	H4-65 Do you trace schematic diagrams of PM receiver	-	-	0	-	1
	bleshoot	-	н	0	-	
Н 627	troubleshoot PM receivers to subass	0	8	0	-	п
Н 628	or circuit cards H4-68 Do you troubleshoot PM receiver subassemblies	•	-	0	7	~
	to circuit	•	ı	•	I	i
	H4-69 Do you align or adjust PM receivers or circuits	6	н.	0	~ 4 ·	~
	Do you	(r	0 (-	ο,
H 632	Mb-z bo you electrically align antennas M5-3 Do you troubleshoot loading of antennas		-10	o o		
	Do you troubleshoot coupling of	0	0	•	-	8
H 634	plot graph radiation	۰,	۰,	0 (⊶.	н,
	ns-e uo you troublesmoot antenna components HS-7 Do vou measure standing wave ratio (SWR) for antennas	- -	٠,			⊣ 0
	Do you work with Yagi antennas	0	0		. 0	. 0
829 H	HS-9 Do you work with dipole antennas	⊶	,, c	0 6	,, c	<
	_		,	. 0	• •	• •
	Do you work	0	•	м	0	0
H 642	work with marconi	0 0	0 0	0 (o (0 (
		- 0	- 0	- 0	- 0	9 0
	Do you work	0	-	0	1	1
	Do you work with ground	0	0	0	•	0
T 647	H5-18 Do you perform tasks on rotary antenna arrays H5-19 Do you perform tasks on stacked (end fire)	o c	c	o c	0 6	• •
	no acres de la casas de nome arrays	•	•	>	•	•
	Do you perform tasks on broadside antenna	0	. -1	•	•	0
	Do you perform tasks on cardioid antenna arrays	0 (- -	0 (0 (0 (
H 652	H3-22 Do vou perform tasks on collinear antenna arrays H5-23 Do vou perform tasks on phase antenna arrays		- 0	- -	o	5 6
	Do you perform tasks on		. 0	• •	٠, ٦	
H 654	H5-25 Do you perform tasks on antennas with	0	•	0	-	0
H 655	vertical polarization H5-26 Do you perform tasks on antennas with	0	0	0	1	•
1	horizontal polarization					

PRTHOD	Sheppard TIC CETP AFSCs matched to Shepard EP POI PM0013			Occupation USAFOMC (Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	is Program ph AFB TX
c						
T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50
Н 656	H5-27 Do you perform tasks on antennas with	0	-	0	-	0
			,	,	1	ı
Н 657	M5-28 Do you perform tasks on antennas with unidirectional radiation patterns	-	-	0	-	1
H 658	H5-29 Do you perform tasks on antennas with	7	-	0	0	0
H 659	bidirectional radiation patterns H5-30 Do you perform tasks on antennas with	7	-	0	0	1
	idiation patterns	ı	1	•	•	ı
	Do you measure RF	-	۷,	0 6	۲,	24
1 662 I 662	II-2 Do you measure MF peak power II-3 Do vou measure MF average bower					17
	Do you measure RF	. 0	٠,-	. 0	٠,-	17
	Do you measure RF or	-	=	0	-	25
	Do you calculate RF appar	0 0	۰.	0 (н,	rJ /
1 667 I 667	IZ-Z Do you calculate RF true power IZ-3 Do you calculate RF power loss or gain in db	- -	- 2	- 0	- ~	<i>م</i> ه
	Do you trace block diagrams of	m	м	44	16	26
1,669	containing microphones [1]-9 Do von true enhamment disgramm of microphone circuite	۲	M	99	7	7.0
	Do you troubleshoot to isolate a	'n	'n	67	16	5 6
	Do you	2	2	29	^	55
J 672	Do you work on	α,	.	38	15	6 0 ·
1 675	JI-6 Do you work on capacitor microphones	c	-	O N	۸ -	9 2
5/9 (Do you work on	- -	٦.	56 26	H M	T2
	n velocity ribbo	•	0	m	. ~	1
J 677	J1-10 Do you trace block diagrams of circuits	5	∞	20	56	43
J 678	containing speakers J1-II Do you trace schematic diagrams of speaker	ĸ	•	20	21	45
	•					
629 6	JI-12 Do you troubleshoot to isolate a faulty speaker	• m	6 3	53	24	45
7 682	JZ-IJ Do you trace schematic diagrams of photosensitive	35.	+	7 0	13 1	0 kg
	device circuits	;	•	•	•	
200	JZ-3 Do you troubleshoot to isolate a faulty photo- sensitive device	e C	-	•	-4	25
	Do you adjust o	27	-	0	7	44
7 687	J2-7 Do you work on phototubes	~ 4	c	0 6	00	23
	5	78	• •	• •		1 25
					•	!
069 F	J3-1 Do you trace block diagrams of circuits containing	м	•	0	0	۷
169 f	uspect that the schematic diagrams of display	м	0	0	-	ιΛ
7 692	Do you troubleshoot to isolate a faulty of	m	0 0	0 (•	۲,
569 7	J3-4 Do you adjust or calibrate display tubes or circuits J3-5 Do you work on direct view storage tubes (DVST)	v 0			- -	o
	Do you work on	• •				r M
969 C	J3-7 Do you work on scan converter tubes (SCI) - 155 -	0	0	0	•	8

PRTHOD	Sheppard TTC CETP AFSCs matched to Shepard EP POI	PH0013		Occupati USAFOMC	Occupational Analysis Progr USAFOMC (ATC) Randolph AFB	Occupational Analysis Program USAFOMC (ATC) Randolph AFB TX	Page	72
D T Tsk Y Nbr	Task Title	306 53	362 51	362 53	362 54	918 50		
769 C	J4-1 Do you trace block diagrams of TV systems or	r	•	0	-	54		
869 r	Sucessementies J4-2 Do you trace schematic diagrams of TV systems or	2	•	0	1	23		
669 F	component circuits J4-3 Do you troubleshoot TV systems to major	2	•	0	1	54		
J 700	Subassements 4-4 Do you troubleshoot TV systems to circuit	-	•	0	1	23		
J 701	tever components J4-5 Do you adjust or calibrate TV systems or	2	•	0	1	22		
J 702	components J4-6 Do you trace block diagrams of laser systems	14	•	0	•	13		
J 703	or subsessminities J4-7 Do you trace schematic diagrams of laser systems or nemerated	ıı	•	0	•	12		
ام 1 م	or component circuits J4-8 Do you troubleshoot laser systems to major	14	•	0	•	11		
J 705	Schassemottes School taser systems to circuit	•	0	0	0	•		
J 706	taver components J4-10 Do you adjust or calibrate laser systems	ıı	0	0	0	o		
J 707	or components J4-11 Do you trace block diagrams of infrared systems on antennal and an antennal antenn	м	•	0	•	6		
J 708	or subdessemblies Up-12 Do traco schematic diagrams of infrared	8	•	0	0	60		
402 ر	systems or component circuits Ud-13 Do you troubleshoot infrared systems to major Characteristics	ю	0	0	•	€0		
J 710	July 200 troubleshoot infrared systems circuit	2	0	•	•	80		
J 711	John Components J4-15 Do you inspect, clean, or service infrared	м	0	•	0	€0		
J 712	systems of components J4-16 Do you adjust or calibrate infrared systems or compon≎nts	m	•	0	0	60		